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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Holiday Cheer
Winter Wonderland
By Golly, We Know a Lapidarist
How Coy Can They Get?
Man of Principle
Decent Cabbies
What? No Marilyn Monroe?
The Virginia Sage
From Our Mailbag
Closing Thoughts

Stories of the Week

Marshalltown's "symphony" orchestra scheduled its big concert for Christmas Eve. Every night, two weeks prior to that date, at least one hornblower or fiddler was absent from the practice sessions.

Praise be! At the final rehearsal everyone participated.

Pleased no end, the conductor gave out with a pep talk. His last lines:

"I now pay tribute to the only musician who came to all the rehearsals. Take a bow, Sam."

Scattered applause followed, and Sam beamed happily.

"The least I could do was come to the practices," he allowed as how, "because I cannot be present for the concert."

If we can believe the Dec. 2, 1955 issue of *The New York Times,* tallest basketball player ever to play the game is Bill Russell. Quote:

"One of the nation's most talented big men is Bill Russell, the University of San Francisco's 66-foot 10 inch All-American center."

What lies behind us and what lies before us are tiny matters compared to what lies within us. —DR. W. H. YEAMAN.

Holiday Cheer

Yuletide sentiments from a master of English literature:

Doughty Street, London
Dec. 12, 1838

Respected Sir,

I meant to have written you a long letter, but I cannot write very fast when I like the person I am writing to. . . . So I will not say anything more besides this —that if you will drink my health every New Year's Day I will drink yours.

I am, your affectionate friend,

CHARLES DICKENS

Winter Wonderland

Client guest of a friend in a duck blind aimed his shotgun at a covey of mallards as they fluttered to rest.

(Concluded on Page 9, Col. 1)

Tramposh Heads New Lineup of ARW Officers

ATLANTIC CITY, N. J.—E. L. Tramposh, president, Refrigeration Equipment Co., Kansas City, Mo., was elected president of Air-Conditioning & Refrigeration Wholesalers for 1956 at the 20th anniversary meeting held here recently.

Elected to serve with Tramposh for the coming year were: I. J. Fajans, president, Aetna Supply Co., New York City, as vice president; W. J. Hieber, vice president, Refrigerative Supply Co., Portland, Ore., as secretary; and C. G. Koopman, vice president, Supply Distributors Corp., Boston, as treasurer.

These officers, together with H. W. Welker, Jr., president, Hasco, Inc., Greensboro, N. C., and immediate past president of

(Concluded on Page 4, Col. 5)

Craig Named Head Of Westinghouse Appliance Div.

PITTSBURGH — Gwilym A. Price, chairman and president of Westinghouse Electric Corp., has announced the election of John W. Craig as vice president of the company and general manager of its electric appliance divisions.

Craig succeeds John H. Ashbaugh, who remains as a Westinghouse vice president and special consultant to Chris J. Witting, recently appointed vice president of the Westinghouse consumer products group.

The electric appliance divisions consist of plants at Mansfield, Columbus, and Newark, Ohio, and at Springfield, Mass. The product lines covered include major appliances, portable

(Concluded on Page 24, Col. 4)

NAHB Meeting Jan. 22-26 Attracts 450 Exhibitors

WASHINGTON, D. C. — The 12th annual convention-exposition of the National Association of Home Builders is expected to draw between 25,000 and 30,000 visitors to Chicago between Jan. 22 and 26, the NAHB announced recently.

Approximately 450 manufacturers and service organizations —a third more than last year— will spread their exhibits over the exhibit halls of the Sherman and Conrad Hilton hotels and the Chicago Coliseum.

More than 100 general meetings, panel discussions, and clinics will be held during the five-day convention at all three locations.

Primary emphasis this year, John M. Dickerman, NAHB executive director, said, will be placed on the problems and

(Concluded on Page 4, Col. 4)

Admiral Has 9 Room Units, 6 Freezers, 10 Refrigerators

CHICAGO—New lines of room air conditioners, freezers, and refrigerators were announced by Admiral Corp. here recently.

Admiral bowed nine models of room air conditioners, including a new 2-hp. unit. All except the two "deluxe" (lower priced) units feature pushbutton controls. The line includes casement and in-the-wall models in ¾-hp. and 1-hp. sizes.

The freezer line includes three uprights and three chests. Colorful fashion front styling and

(Concluded on Page 21, Col. 1)

Motor Products To End Deepfreeze Operation

DETROIT — Directors of Motor Products Corp. last Monday decided to discontinue the operation of its Deepfreeze Appliance Div. in North Chicago on March 31, according to R. J. Nixon, Motor Products president.

"We've taken terrific losses over there and have had the same troubles as other small manufacturers," Nixon explained.

Nixon said no details were immediately available on what actions will be taken regarding Deepfreeze personnel, equipment, and inventory.

Automatic Firing Changes Ownership

ST. LOUIS—Control of the Automatic Firing Corp. has been acquired by L. K. Newell and Associates and the name changed to Automatic Corp., the company has announced.

Newell was elected president and James J. Lee has been appointed vice president in charge of sales, and a member of the board of directors.

The change of name was necessitated by the expansion of the products to be manufactured, the company said.

The line of residential water

(Concluded on Page 4, Col. 1)

Sullivan Manages York Room Conditioner Sales

YORK, Pa.—Joseph J. Sullivan has been appointed sales manager, room air conditioning, according to Robert E. Cassatt, manager of sales, Commercial Div., York Corp.

J. J. Sullivan

"This is a new position in our organization," Cassatt explained, "made necessary by the greatly expanded activity on the various lines of York equipment, especially on room air condi-

(Concluded on Page 4, Col. 2)

New Jersey Rules Air Conditioners Needed For Comfortable Life

TRENTON, N. J.—Installing an air conditioning unit is no grounds for eviction, Chester K. Ligham, New Jersey rent control director, ruled recently.

"Air conditioners have become a necessary adjunct of comfortable living," he stated, "and unless their use is expressly prohibited under the rental arrangement, the tenant has as much right to install one as to use a toaster, vacuum cleaner, or other electrical appliance."

Ultrasonic Will Sell Conditioner Rights to Rheem

BOSTON — Ultrasonic Corp. has agreed to sell Rheem Mfg. Co. the assets, development work, and patent rights pertaining to its air conditioning business, officials of the two companies declared in a statement recently.

The agreement is said to provide for a limited license for continuance of air conditioning operations by Ultrasonic, the transfer of certain air conditioning inventory and personnel to Rheem, and a lease to Rheem for manufacturing purposes of about a quarter of Ultrasonic's building in Cambridge, near this city.

In Chicago Veral J. Heinis, general manager of the Rheem Products Div., confirmed only that Rheem "has purchased some of the patent rights previously held by the Ultrasonic Co."

Heinis said Rheem is now readying a new program of air conditioning embracing both equipment and merchandising for 1956. Rheem's central air conditioning units, he declared, will feature compactness, ease of installation, and moderate cost.

He observed that during 1955, Rheem has substantially increased its technical staff on air conditioning.

Account Loss Blamed on Dairy 'Giveaways'

Big Firm Competition Hurting Small Company Business, FTC Hears

RICHMOND, Va. — Competition by "big companies" was blamed for the loss of accounts by an official of an ice cream company testifying here last week at a Federal Trade Commission hearing.

"About 100 accounts" were lost in six or seven years, Joseph Arcese of Virginia Ice Cream Co. (Portsmouth) told FTC examiners in the Federal Court of Appeals here.

The Richmond hearing is part of the nationwide series being conducted by FTC on alleged unfair competitive practices by major ice cream manufacturers.

Seven persons were subpoenaed to testify here.

Blaming the lost accounts on "big company" competition, Arcese added, "I know if they want a customer, they'll get him. All of the companies are taking

(Concluded on Page 24, Col. 1)

Unions Settle Frozen Item Handling Row

CHICAGO — After years of intermittent jurisdictional strife, two AFL unions—the Amalgamated Meat Cutters & Butcher Workmen of North America and the Retail Clerks' International Association—have agreed to respect each other's jurisdiction.

Latest dispute between the unions, now members of the merged AFL-CIO, occurred on the west coast. The row was over which union would have jurisdiction in the handling of frozen dinners and specialty items in supermarkets.

Under the five-year agreement, the Meat Cutters will represent all food store employes in the meat department, including those handling meat,

(Concluded on Page 24, Col. 1)

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What's in a name?
QUALITY
...if the Name is
READING
COPPER TUBING
FOR REFRIGERATION & AIR CONDITIONING EQUIPMENT
READING COPPER TUBE
READING TUBE CORPORATION
EMPIRE STATE BUILDING NEW YORK 1, N. Y.
WORKS: READING, PA.

New Mexico Contractors Unite; To Meet In Alburquerque Jan. 14-15

ALBUQUERQUE, N. M.— First conclave of newly-formed state association of some 150 air conditioning and refrigeration men will be held here Jan. 14-15, C. J. Criswell, president of the group is quoted in the public press as stating.

Ray Kromer of Cleveland, national vice president of the National Refrigeration and Air Conditioning Contractors Association will be on hand to discuss possible affiliation of the state group with his organization, the report continued.

Two Albuquerque engineers, R. J. Uhl and Dr. A. D. Ford, are scheduled to address this initial parley. Several nationally-known experts in the field are tentatively slated to speak, George Hines, convention committee chairman announced.

Other committee members are Walter Smith and H. U. Blue. Frank Burnworth is chairman of the membership committee composed of Ray Traxler, Norman Phillips, and Hines, it was reported.

Las Vegas Union Facility To Get Year-Round System

LOS ANGELES — The new facility in Las Vegas, Nev. for the Culinary Workers Union is being set for Drayer-Hanson complete year-round air conditioning, the manufacturer reports.

Using the company's HHV series of floor-mounted heating and ventilating units, installations will be accomplished by Hammond Sheet Metal, Las Vegas.

Air Conditioning Supply Co. represented Drayer-Hanson in the transaction, it was announced.

Survey Details Utility Heat Pump Activities, Installation Figures

NEW YORK CITY — "Heat Pump Promotional Activities," a 1955 EEI heat pump survey in which 129 electric companies participated, has just been compiled by the Edison Electric Institute.

The survey, carried out under the direction of the market research committee and the commercial electric space heating and air conditioning committee of EEI and the joint AEIC-EEI heat pump committee, contains information concerning promotional activities of three groups of utilities.

They are those with definite programs, companies who plan to promote the heat pump in the future but have no present definite program, and a group whose activities are primarily concerned only with experimental installations for company study purposes.

Forty-six utilities reported definite promotional programs, 16 indicated they plan to promote the heat pump, and six companies plan to carry out investigations with experimental installations before making definite programs.

Installations reported by the 129 companies surveyed, as of Dec. 31, 1954, included 1,614 residential, 991 commercial, and 17 industrial, for a total of 2,622.

A geographical distribution of the number of residential and commercial heat pump installations was recorded. The South Atlantic section led with 1,240 installations reported. Next was the Pacific region showing 510 installations.

Other sections were, West South Central, 345; East South Central, 213; East North Central, 147; Middle Atlantic, 58; Mountain, 56; West North Central, 35; and New England, 1.

The survey shows that as a heat source 1,251 installations used air, 862 water, and 71 ground. Not all of the companies reported their heat source however.

Sales quotas for 1955 were reported in various ways. 480 heat pump installations are planned by 10 companies while five other companies reported 542 "units." Two companies planned to install 3,377 "tons" during 1955.

To Divert Defense Nickel, Copper for Industry Use

WASHINGTON, D. C.—About 14,000 tons of copper and 6,150 tons of nickel scheduled for delivery to the Government will be diverted for industry use in the first quarter of 1956, it was announced by the Office of Defense Mobilization.

The agency said copper deliveries due under Government contract during the quarter are being postponed. The nickel will be diverted from scheduled shipments for the national stockpile of strategic metals, the announcement said.

About 15% to 20% of the nickel to be made available to industry will be "premium price" ferronickel and nickel ingot, according to the ODM statement.

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SINCE 1906
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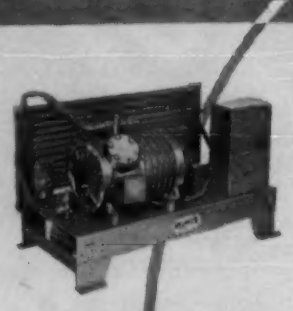

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As we approach 1956... our 50th Anniversary year... we pause only momentarily to salute the past.

Our idea of an Anniversary celebration is to make available to you the finest products in Brunner history.

Look to Brunner in 1956 for the most complete line of Open-Type and Brunner-Metic Refrigeration Condensing Units... a full range of Air Conditioning Condensing Units... and the Brunner Warranty Program serviced by 166 Authorized Wholesalers, from coast to coast.

It's your Brunner Product-Service Package for Bigger Profits!

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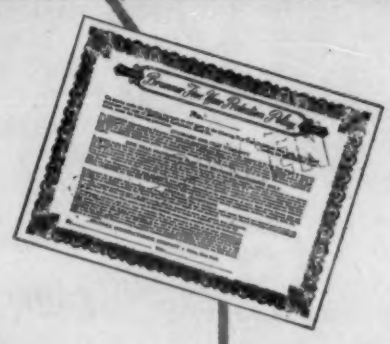
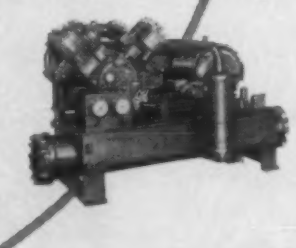
In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ontario





For more information about products advertised on this page use Information Center, page 16.

Extension Granted In Dealers Suit Against Mfrs., Distributors

CHICAGO — Nine of the 14 defendants in an anti-trust suit filed by eight South Side appliance dealers were recently given until Jan. 17 to answer or plead to the complaint, according to a report.

The extension was granted by Federal Judge J. Sam Perry to these firms:

Polk Bros. Central Appliance & Furniture Co.; RCA Victor Distributing Corp.; Radio Corp. of America; Westinghouse Electric Supply Co.; Westinghouse Electric Corp.; R. J. Cooper, Jr., Inc.; Philco Corp.; Philco Distributors, Inc.; and Graybar Electric Co., Inc.

In all, the defendants include 12 manufacturers and distributors and two retailers, Polk Bros. and Grossi Bros., Inc. The latter previously was given until Jan. 17 to answer or plead to the complaint.

The plaintiffs are seeking treble damages totaling $11,625,000. They charge the manufacturers and distributors unfairly granted the two retailers discriminatory lower prices, provided them with paid salesmen and demonstrators not available to other dealers, and paid them advertising and other allowances not granted to all other dealers.

These actions, the plaintiffs claim, lessen competition and tend to create a monopoly in violation of Federal anti-trust laws.

Federal Judge Sets Aside Dual Temp Patent Verdict

PORTLAND, Ore.—A $2 million verdict in a patent infringement suit filed by Moist Cold Refrigerators, Inc. of Oregon against Admiral Corp. and Amana Refrigeration, Inc. was recently set aside by Federal Judge Gus J. Solomon, it was reported.

Moist Cold Refrigeration claimed ownership of a patent for dual temperature type refrigerators.

The jury in Judge Solomon's court awarded the plaintiff $2,138,755 in damages. Most of the damages, $2,093,180, were assessed against Admiral, and the remainder, $45,575, against Amana.

However, Judge Solomon asserted that there was "no rational basis for the amount of damages returned by the jury" and criticized lawyers for Admiral and Amana.

He termed the moist cold patent a "minor improvement in a crowded field" and declared that the jury was "at no time adequately informed of defendant's contentions." Judge Solomon said the defense closing argument was so complicated that he himself couldn't understand some of it.

Weber Appoints Lesh

LOS ANGELES — Weber Showcase & Fixture Co.'s appointment of J. A. Lesh as comptroller has been announced by Karl Weber, president.

Gibson Fiscal Year Net Jumps Over '54 To Total $706,000

GREENVILLE, Mich. — Net earnings of Gibson Refrigerator Co. in the year ended Sept. 30 were up sharply over a year earlier, the company reported to its shareholders.

They totaled $706,000, or $1.17 per share, compared with $257,600, or 43 cents a share in the 1954 fiscal year.

Sales were $32,853,599, compared with $32,635,408 a year ago, reported Charles J. Gibson, president.

Gibson also revealed that orders booked since the annual sales convention early in October are slightly more than double those for the same period a year earlier.

Export sales are also growing sharply, Gibson reported.

Shillito Will Open Used Item Outlet

CINCINNATI — An executive of John Shillito Co. disclosed recently that the department store next spring will open a separate retail outlet for used major appliances and television receivers.

The spokesman said the operation would be "something in the nature of an experiment."

The manager of the store will buy used items for the main store or directly from the customer on a trade-in basis with the main store, and set selling prices of the used units.

The outlet will be "on its own" operation-wise and will strive to make a profit. However, a break-even operation would be considered satisfactory.

It was pointed out that the outlet would eliminate the serious handling problem in the main store.

N.Y. Carrier Distributor Sets '56 Room Unit Prices

NEW YORK CITY — List prices in its market for 1956 Carrier room air conditioners have been established by Carleton-Stuart Corp., local Carrier distributor.

The prices range from $269.95 for the ½-hp. model 51V2 to $459.95 for the 1½-hp. model 51V5. The ¾-hp. model 51V3 is priced at $319.95 and the 1-hp. model 51V4 at $359.95.

Carrier did not announce national suggested list prices for the new line when it was introduced recently. The company reportedly is recommending that distributors set lists for their own market.

Carleton-Stuart also announced that it will establish a service company to serve dealers who do not want to make their own delivery, installation, and service arrangements. To be called Room Conditioner Service Co., Inc., the concern will cover all Carrier units on a five-year basis, according to Joseph Thunell, room air conditioning sales manager for the company.

Thunell also reported that the distributor, for the first time, will offer dealers a seven-day, all-expense-paid trip by air to Havana. Eligibility will be on a sliding purchase scale, depending on the size of the individual retailer.

Oklahoma Firm Chartered

OKLAHOMA CITY — Central Air-Conditioning Corp., Oklahoma City, has been granted a charter. Capital stock is $10,000. Incorporators are M. O. Oden, Sr., J. L. Spaulding, Wewoka, and Lester Lloyd, Oklahoma City, a recent announcement stated.

TWO good reasons why H & H copper COILS and STRAIGHT LENGTHS are preferred for the fabrication of tubular parts

Originators and Sole Makers of METALFLO Tubing

Our 25th year

THE NEW H & H ELECTRIC ANNEALING FURNACE, result of long years of designing and testing, incorporates every modern technological advancement. It is your assurance of copper tubing that is always uniform and with a finish that is truly permanent, extra clean, extra bright.

LABORATORY CONTROL OF GRAIN SIZES has always been routine procedure at H & H. The use of its own Rockwell instruments to test the temper of metals plus the careful recording of grain structures specified by customers is your guarantee of tubing as you want it, tubing completely free of any open grain condition.

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Straight lengths are available in a range of sizes from 3/32" O.D. through 1½" O.D. in wall thicknesses of .065 and lighter. In capped, plugged or open ends. Standard 50' refrigeration coils are available in sizes from ⅛" O.D. to and including ⅝" O.D.

Expect the BEST brass and copper products from

H & H Tube AND MANUFACTURING COMPANY

271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast

METALFLO LOCKSEAM COIL STRIP AND SEAMLESS TUBING TUBULAR PARTS

Automatic Firing--

(Concluded from Page 1, Col. 4)

and air-cooled and the commercial and store air conditioning equipment will be supplemented by a line of gas warm air heating units; horizontal, counterflow, hi-boy, and gas furnaces.

The air conditioning equipment will be known as "Cool-A-Matic" and the gas heating equipment as "Gas-A-Fire," the same as the Gas-A-Fire gas conversion burners which have been and will continue to be manufactured by Automatic.

The entire new line of products and prices for 1956 will be announced the first week in January, it was said. In addition, plans are under way to increase the sales representation throughout the United States.

The present program calls for the appointment of 12 additional representatives who will introduce the new line and the new merchandising helps to the dealer organization.

Automatic will also announce a remote residential air-cooled unit in 2, 3, and 5-ton capacity. This unit will be equipped with the Quip Coupling attachment.

Manufacturing facilities have been increased and all products are available for immediate shipment with the exception of the remote air-cooled units. Availability date will be early in the first quarter of 1956, the company said.

Sullivan--

(Concluded from Page 1, Col. 3)

tioning and residential air conditioning."

To accept the position, Sullivan resigned as manager of sales management development of the Radio and Television Div. of Sylvania Electric Products, Inc., in Buffalo, N. Y.

Philco Has Until Dec. 31 To Answer Federal Query On Its Merchandising

PHILADELPHIA—The U. S. Dept. of Justice has given Philco Corp. until Dec. 31 to answer or file objections to a list of 18 questions on its merchandising operations in 1954.

Through these questions, the government is seeking information to support its charge that Philco violated anti-trust laws in its nationwide agreement signed with 130 distributors in August, 1954.

The government charges that the agreement unlawfully restrains both foreign and domestic trade and limits competition between Philco dealers. The Justice Dept. is asking the U. S. District Court here to declare the agreements in existence between the company and its distributors and between the distributors and their dealers invalid.

Philco denies the charges and says its operations are within the law.

NAHB Convention--

(Concluded from Page 1, Col. 2)

operations of the small volume builders who produce one to 20 homes a year; merchandising techniques for all builders; mortgage financing; and "how-to-do-it" clinics designed to demonstrate new and economical home building techniques.

Scheduled speakers include Secretary of Labor James P. Mitchell; General James A. Van Fleet; Boyd Campbell, president of the Chamber of Commerce of the United States; and Charles F. Kettering, former vice president and general manager of research for General Motors Corp.

NEW HEAD OF ARW for the coming year is E. L. Tramposh of Refrigeration Equipment Co., Kansas City, Mo., pictured here with Mrs. Tramposh.

ARW President--

(Concluded from Page 1, Col. 2)

ARW, will serve as the 1956 executive committee.

In addition to the officers, other directors for 1956 are:

W. M. Carroll, McCombs Supply Co., Albuquerque, N. M.; J. L. Homan, Allied Supply Co., Inc., Dayton; A. H. Holcombe, Jr., Victor Sales & Supply Co., Philadelphia; W. C. Miessemer, Arizona Refrigeration Supplies, Inc., Phoenix; E. P. Sorensen, Airo Supply Co., Inc., Chicago; and R. E. Warwick, Plumbing Wholesale Co., Jackson, Miss.

Wholesaler attendance at the 1955 meeting was at an all-time high with more than 140 member firms represented by 226 wholesalers.

Highlights of the convention program were:

An address entitled "Industry Outlook for 1956" by George S. Jones, Jr., managing director of ARI; a discussion on "Executive Training" by Samuel B. Shapiro, manager, Linen Supply Association of America; a talk on "Legal Aspects of Business" by George Peter Lamb, attorney at law, Cann, Lamb, Long & Kittelle, Washington, D. C.; and a discussion on "Public Relations for Wholesalers" by O. E. Anderson, secretary, Ohio Bankers Association.

A. Starr Hull, ARW executive secretary, reported that membership is at an all-time high with more than 200 members. Five new applications were handled during the convention but cannot be added to the membership roster until 1956, Hull reported.

Members attending the meeting heartily endorsed ARW's present program and the work of the various committees. The group authorized the broadening of the scope of activities to include "Cost Analysis of Wholesaler Business" and the addition of many more educational programs.

President-Elect Tramposh, in his address to the group, spoke of the position earned by wholesalers in the "Miracle of Distribution" of the industry's goods. He encouraged the support of all wholesalers in ARW's programs and called for "roll up the sleeves" type of cooperation in working toward the goals set by the members of the association.

ARW's 1956 annual meeting is set for Oct. 24 through 26 at the Jung hotel, New Orleans, it was announced.

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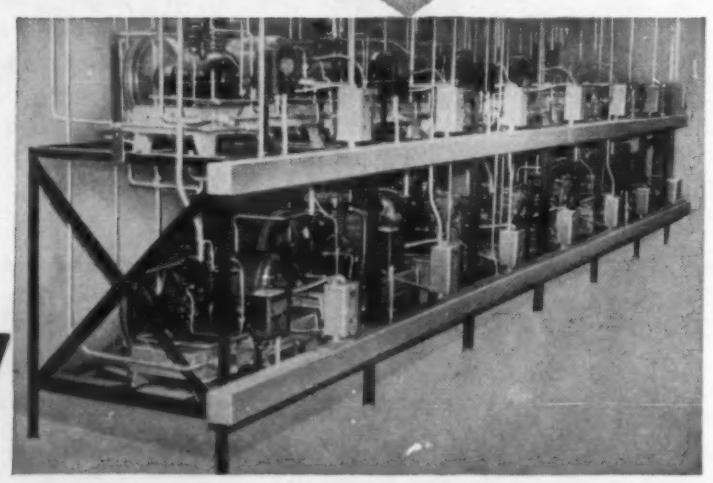
Winter and Summer
WITHOUT ANY WATER*

Photographs of UNICON installation at Trimborn's Supermarket, Hales Corner, Wisconsin

Installed by Real Refrigeration Sales and Service, Milwaukee, Wisconsin

Units furnished by Wisconsin Refrigeration Supply Company, Milwaukee, Wisconsin



WRITE FOR BULLETIN U-291

**UNICON is a Remote-Type Air-Cooled Condenser*

KRAMER TRENTON CO. • Trenton 5, N.J.

For more information about products advertised on this page use Information Center, page 16.

Hupp Announces Acquisition of Pioneer Electric

CLEVELAND — Hupp Corp. has announced acquisition of the business and assets of Pioneer Electric & Research Corp. of Chicago, an electronics firm engaged in both manufacturing and research operations.

Directors of both companies have approved the transaction which will be completed in the near future, according to John O. Ekblom, chairman of the executive committee of Hupp, and John J. McEnerney, president of Pioneer.

Under the terms of the agreement, Hupp will issue approximately 16,000 shares of its common stock in payment for the business and assets of Pioneer. This stock is to be distributed to the Pioneer stockholders, it was stated.

The business of Pioneer will be conducted as the Pioneer Electronics Div. of Hupp, with McEnerney continuing as president.

The acquisition by Hupp follows the merger agreements negotiated with two other companies this month, Typhoon Air Conditioning Co. and Typhoon Prop-R-Temp Corp., as was reported recently.

Earlier in 1955, Hupp had negotiated a merger in which Perfection Industries, Inc. Cleveland, became the Perfection Industries Div. of Hupp Corp., it was added.

Distributors Gain 13% Over '54 In October Cooling Supplies Sales

WASHINGTON, D. C.—October sales of air conditioning and commercial refrigeration equipment distributors gained 13% compared with a year earlier but were down 4% from September, according to the Bureau of the Census.

Sales of the distributors for the first ten months of 1955 were 13% ahead of the corresponding 1954 period. Their Oct. 31 inventories were unchanged from a year ago and 1% lower than at the end of September, according to the report.

Sales of distributors of electrical appliances, TV and radio sets and parts, and electronic equipment and parts in October were 3% higher than in October, 1954, but declined 7% from September. In the first ten months of this year, their sales were 10% better than in the like period of 1954.

End-of-October inventories of these distributors increased 5% compared with Oct. 31, 1954, and 6% compared with stocks on hand at the end of September.

October sales of all types of merchant wholesalers as a group showed no change from September but were 11% above October a year ago. Sales for the first ten months in 1955 were 10% higher than in the comparable period of 1954. Oct. 31 inventories of the wholesalers rose 3% above the level of the previous months and were 8% above stocks on hand a year ago.

Westinghouse Div. Appoints Moore

STAUNTON, Va.—Robert J. Moore has been appointed sales manager, packaged products, for the air conditioning division, Westinghouse Electric Corp., it was announced by Bruce D. Henderson, vice president and division manager.

He will be responsible for the sales activities of all Westinghouse residential and commercial packaged air cooling and heating units and heat pumps, the report continued.

Moore, who has been with the Westinghouse appliance division since 1948, comes to his new position from Los Angeles where he has served as Pacific coast district manager for consumer products.

He has also served the company in various sales capacities in Seattle, Salt Lake City, and San Francisco.

Shareholders To Pass On Directors Vote To Merge Sq.D, Electric Controller

DETROIT — Square D Co., Detroit, and Electric Controller & Mfg. Co., Cleveland, have called special meetings of shareholders for December 28 to vote on merging the two companies, it was announced.

In a joint statement, F. W. Magin, president of Square D, and A. G. Patterson, president of Electric Controller, stated that directors of both companies have now approved the merger plans.

Proxy soliciting material mailed to shareholders of both companies state that Magin would become chairman of the board of directors of Square D, and Patterson would become president, to be effective upon approval of the merger, the report concluded.

Solar Permanent-Co. Moves to New Plant

TOMAHAWK, Wis. — Solar Permanent-Co., Div. of U. S. Industries, Inc., recently moved into and began manufacturing operations in its new plant here, the company announced.

Production of bulk milk farm tanks marketed under the name "Solar Milkminder," was moved here from Chicago. New equipment added to that transfered, provides improved service in making the stainless steel tanks, the manufacturer declared in the announcement.

Operating as an independent division of the parent firm, Solar has included technological advances in farm tank production here. The plant houses production, engineering, and sales and service organizations.

It has over 100,000 sq. ft. of floor space, the company reported.

Carrier Exchanges All $3 Preferred Stock

SYRACUSE, N. Y. — All of the outstanding shares of $3 series cumulative preferred stock of Carrier Corp. has been exchanged or redeemed, it was announced by Cloud Wampler, chairman and president.

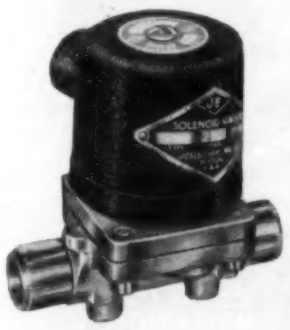
The exchange offer made Oct. 20 was accepted by 96.8% of the holders of the $3 preferred stock on the basis of 1 1/20 shares of 4½% series preferred stock for each share of $3 preferred. Those shares not exchanged have been redeemed at $52.83⅓ per share, which includes the call price plus all accrued dividends.

As a result Carrier now has outstanding only 4½% preferred stock in the amount of 208,690 shares, each with a par value of $50. The number of common shares presently outstanding is 1,692,147.

Thousands of J-E Solenoid Valves . . . Installed in America's "Miracle Community"—Levittown, Pa.

Specifications are carefully considered on a mammoth project like Levittown, Pa., where a community of 17,000 homes is being created for a population of 70,000. It is significant that J-E Solenoid Valves were selected for installation on the modern "zoned heat" hot water circulating systems in thousands of these homes.

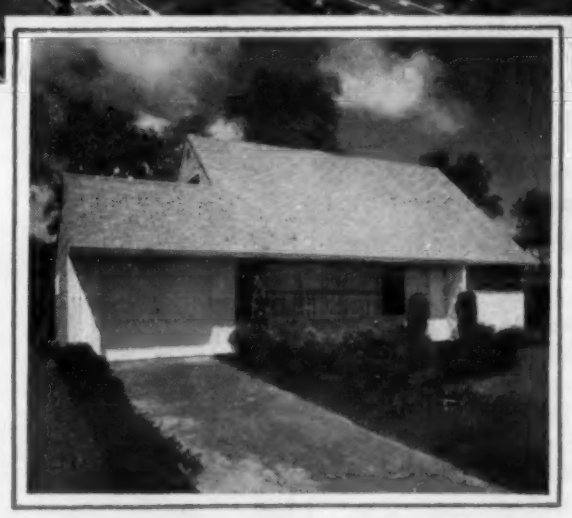
Among the reasons why are:



QUIET OPERATION—no mechanical linkage or impact action.

DEPENDABILITY — No metal-to-metal contact to wear—no close tolerances. Tight closing resilient seats.

MAINTENANCE FREE—only two moving parts—flexible diaphragm eliminates clogging—minimum temperature rise assures cool coils, long life.



The new Levitt "Jubilee" Home features "zoned heating" controlled by one thermostat downstairs and one upstairs. Hot water circulation for radiant heating and forced air convectors is controlled by dependable J-E Solenoid Valves.

. . . for lasting customer satisfaction

For complete information on the wide range of sizes available in the newly improved line of J-E Solenoid Valves, for heating, cooling, refrigeration or air conditioning, call your wholesaler or write direct today.

LOOK FOR THE RED DIAMOND J-E SOLENOID VALVES

JACKES-EVANS MANUFACTURING COMPANY

Controls Division: 4427 Geraldine Avenue • St. Louis 15, Missouri

For more information about products advertised on this page use Information Center, page 16.

Suggest Design Changes for 'Best' Air Conditioner Compressor Motor

ST. LOUIS—What features of a motor can the designer change to achieve "the best" compressor motor for air conditioners?

Frame size, rotor diameter, slot combinations, slot configuration, and the motor windings are the major elements, according to M. E. Evans of General Electric Co., who spoke at the AIEE conference here on applications of motors to space heating and cooling equipment.

Trend to 2-Pole Motors

Incidentally, Evans noted that "one of the many trends for the future is to the use of two pole-motors instead of four-pole motors. All compressors in the past have used four-pole motors but in the near future a substantial portion of this industry may have two-pole motors," he predicted.

Motor designs, he pointed out, must meet performance specifications set up by compressor manufacturer. He listed the following averages as a "typical set" for a ¾-hp. 115-volt room air conditioner:

Breakdown torque, 96 oz. ft.; starting torque, 60 oz. ft.; running current, 12 amperes; starting current, 45 amperes; power factor, 85 to 90%; efficiency, 80%; voltage to ground, not specified.

Frame Size Not Critical From Electrical Point

The frame size, or outside diameter of the stator," is not necessarily critical from an electrical standpoint," Evans declared. "The frame diameter is selected by the compressor manufacturer to fit his mechanical requirements.

"Having established the outside stator diameter, the next consideration is the punching configuration of which the rotor diameter is the major dimension.

"Some of the electrical performance characteristics that will be affected by the rotor diameter are current densities —consequently the temperature rise, the length of the motor, the starting torque for a given starting current, and the speed at heavier loads.

Current Density Increased With Large Diameter Rotor

"With a large diameter rotor the current density is increased, the motor stack is longer, the starting torque is reduced and the heavy load speeds are up as compared to a smaller diameter rotor. The proper selection of these characteristics will lead to the optimum rotor diameter," Evans explained.

"The desired mechanical details of the motor will be a factor in selecting the rotor diameter. Some features are inertia, rotor vent area, and counterbore.

Inertia Major Factor With Only One Cylinder

"Inertia is a major factor when the compressor has only a single cylinder. Insufficient inertia will result in a high current input because of the large pulsating load on the motor," he said.

"In a small diameter rotor, vent area requirements and the need for a counterbore could produce magnetic restrictions in the rotor resulting in reduced electrical performance.

"The final selection of the rotor diameter must provide an optimum balance of electrical and mechanical characteristics.

Rotor, Stator Combination Important Due to Noise

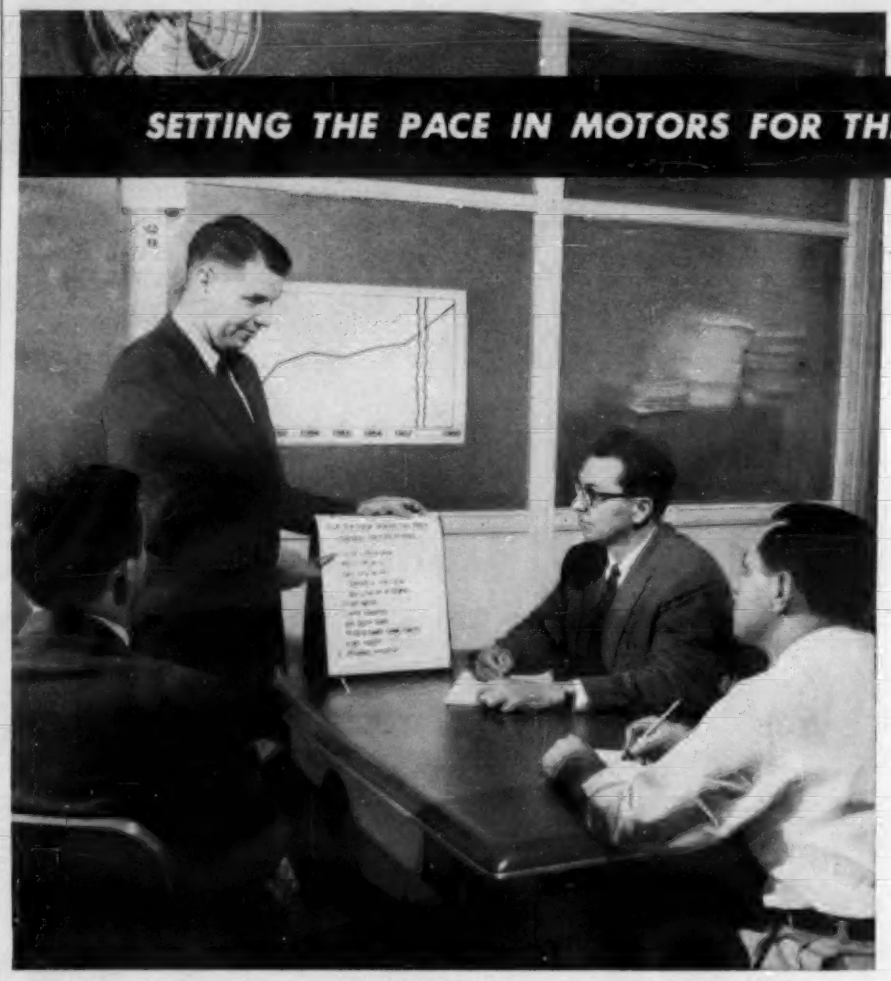
"The rotor and stator combination is important primarily for noise considerations and the harmonic frequencies that are generated in the motor. The wrong selection of stator and rotor slots will, for example, produce larger variations in the air gap permeance. This variation in permeance produces high frequency components in the magnetic fields that may cause vibrations," Evans cautioned.

"Thus, the selection of the rotor and stator slots must be such that the frequencies generated will not resonate with parts in the system and will not produce objectionable noise. The variation in permeance could cause locking of the rotor or poor starting performance. In addition, dip torques in the performance curve could occur at low speeds causing the compressor to lock-in at these speeds.

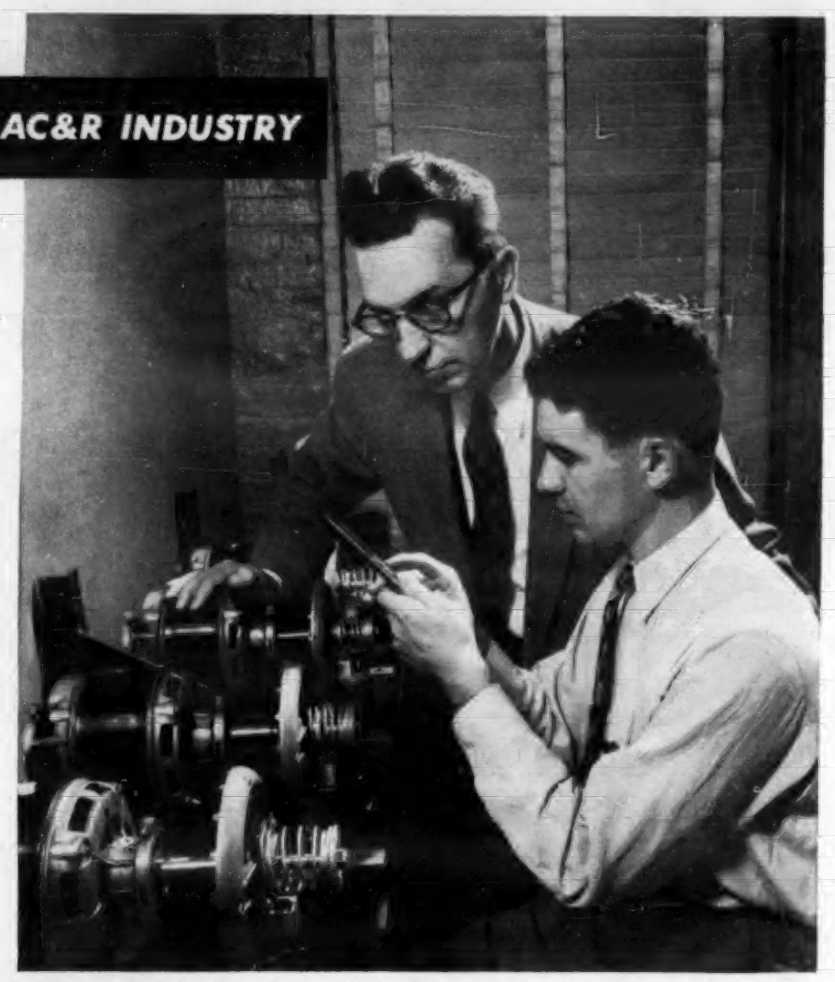
Factors that Change With Slot Configuration

"As the slot configuration is changed, some of the performance factors that will change are: starting torque for a given locked rotor current, current density in the windings, the speed at heavy loads and the stack length. A small slot will

(Concluded on next page)

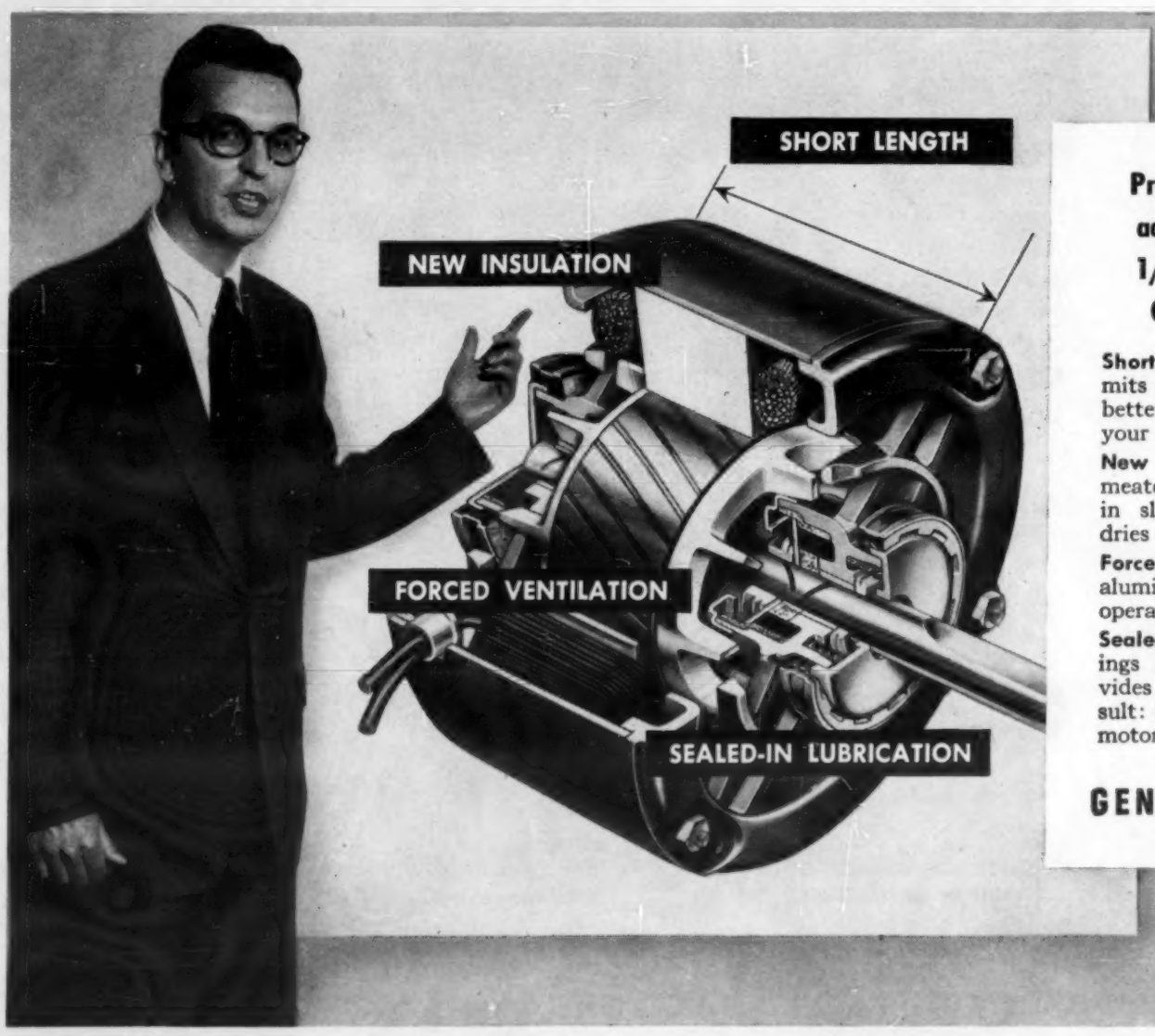


BIRTH OF NEW MOTOR begins with studies by G-E Product Planner (standing) which confirm need to extend economical shaded-pole motor line to larger ratings. Specifications are passed on to G-E Project Engineer.



MANY G-E ENGINEERING SPECIALISTS contribute to new motor, drawing on 19 years of experience in sealed-lubrication design. Here, lubrication expert tests oil pumping action into new bearings as Project Engineer looks on.

Development of new 1/12 thru 1/4 hp



Project Engineer points out advanced features of new 1/12 thru 1/4 horsepower G-E shaded-pole motors

Short length of this new motor permits you to design more compact, better-looking products. Saves on your materials, too.

New epoxy resin insulation permeates every crevice and air space in slots and between windings, dries hard and durable.

Forced internal ventilation from aluminum fan blades means cooler operation, longer life.

Sealed-in lubrication protects bearings from foreign material, provides forced oil recirculation. Result: longer motor life, relief from motor maintenance.

GENERAL ELECTRIC

For more information about products advertised on this page use Information Center, page 16.

Motor Design Changes--

(Concluded from preceding page) result in a lower starting torque, high current densities, higher speeds, and a shorter stack length," said Evans.

"The compressor manufacturer will benefit by higher speed at heavier loads and the reduced stack length. However, the higher curren densities (consequently higher temperature) and the reduced starting torque will limit how far this parameter can be changed.

"Mechanically, the small slot will have a stiffer yoke and a thicker tooth which may help dampen vibrations and reduce the noise level," he added.

Motor, Capacitor Windings Broken Down

"The windings in the motor and the capacitors used are broken down as follows: ratio of start winding turns to the main winding turns, relative split of weights of the main copper and start copper, run capacitor size, and the start capacitor size.

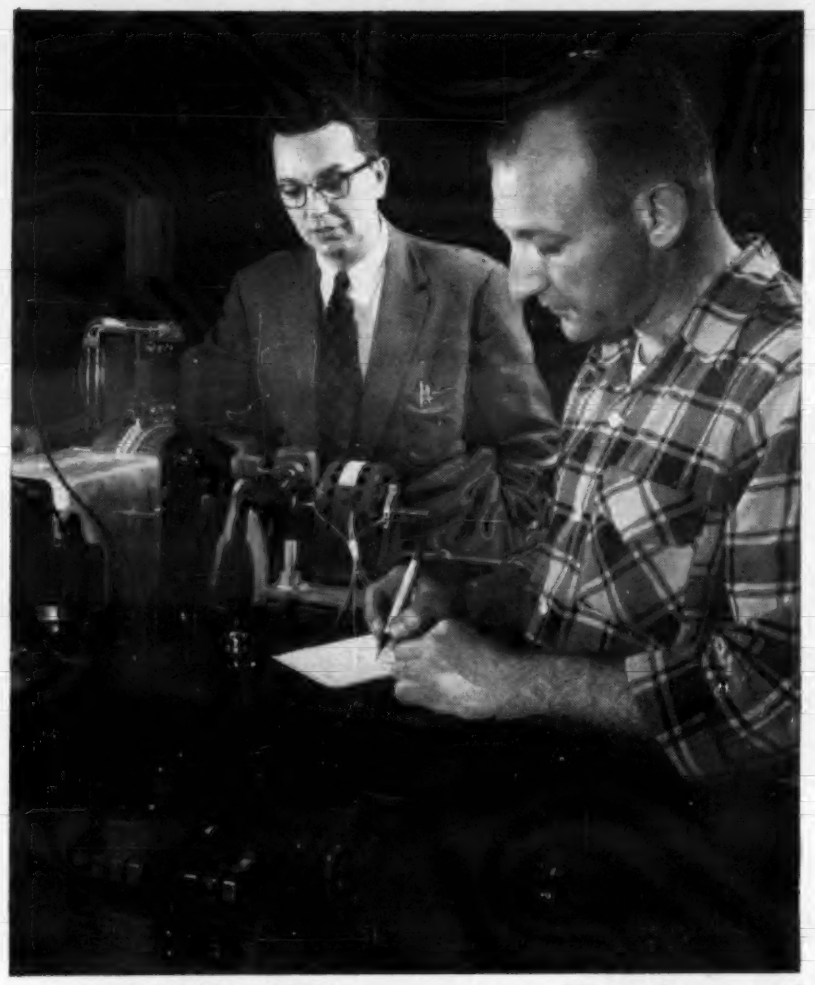
"Increasing the ratio of start to main turns will increase the power factor, the run capacity voltage, and the voltage to ground. At the same time, the running current will decrease and the cross-over speed of the running and starting curves will be lower. If this speed becomes too low, the motor may fail to get off the starting connection under adverse conditions," Evans explained.

"When the total weight of copper is divided to put less copper in the main winding and more in the starting winding, the following will occur under some conditions: the cross-over speed will be higher, the power factor will be slightly improved, and the starting torque can be increased. However, the current density in the main winding will be higher, causing a higher rate of temperature rise," he explained.

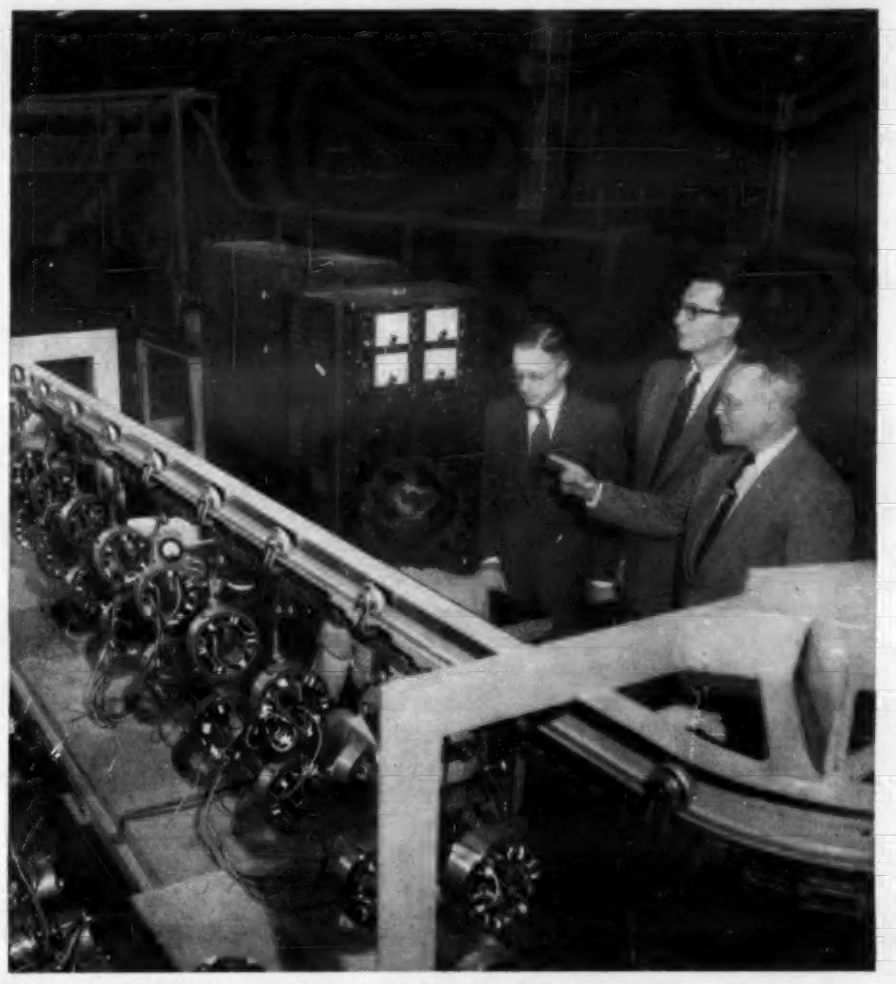
Increasing Run Capacitor Size Increases Power Factor, Voltage

"Increasing the size of the run capacitor will increase the power factor, increase the run capacitor voltage and reduce the running current. A higher voltage in the capacitor will necessitate a higher voltage rating on the capacitor and hence increase the cost.

"The start capacitor, as it is increased in size, will lower the cross-over speed, increase the starting torque, increase the starting current, and lower the voltage across the capacitors at standstill."



EXHAUSTIVE TESTS prove new motor. When advantages of such features as forced oil recirculation, internal-fan cooling of bearings and windings, and improved insulation are fully demonstrated, motor is released for production.



NEW PRODUCTION LINE backs confidence in new motor with substantial investment. Manufacturing Manager, Project Engineer, and Quality-control Manager observe one of 20 quality checks which guard G.E.'s reputation for dependability.

motors brings G-E shaded-pole economy to your larger fan-drive ratings

How G-E market research and engineering anticipate and meet your motor needs

Anticipating and meeting motor needs of the fast-moving air-conditioning and refrigeration industry is a real challenge. An example of how General Electric achieves this goal is the development of G.E.'s new 1/12- thru 1/4-hp shaded-pole motor line. These more powerful motors extend to your larger equipment the inherent economy and multiple-speed characteristics of shaded-pole motor construction.

Birth of this new motor line began with determination by G-E market-research men of the general specifications needed to meet motor needs of the AC&R industry. Then G-E advanced-development engineers took over.

Drawing on skills of G-E specialists in every phase of motor design, these engineers created a compact motor line with the best combination of efficiency, starting and pull-up torque, and speed stability yet achieved in shaded-pole design.

Today, a new G-E production line—an investment made by G.E. especially to meet your needs—is producing these motors in volume.

These new motors are just one example of G-E shaded-pole motor leadership. The G-E combination of experienced product planners, skilled design engineers, and unmatched development facilities is now working to meet your motor needs of tomorrow.

For full information on G-E shaded-pole motors, contact your nearby G-E Apparatus Sales Office today. Or write for Bulletin GEA-6134 to Sect. 704-47, General Electric Co., Schenectady 5, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Kelvinator Room Unit Plan Will Help Dealer Get Pre-Season Sales

DETROIT — Kelvinator has announced a free floor plan with no down payment for room air conditioners to dealers to June 1, 1956.

"With this plan we are putting dealers in a position to do business in advance of the season without tying up their working capital in inventory," W. G. Kronauge, sales planning manager for room air conditioners, said. The plan covers all Leonard and Kelvinator shipments through April, 1956.

"We believe it is possible to take some of the hump out of the seasonal curve in room air conditioner sales and this is Kelvinator's contribution to the dealer to accomplish that objective," he said.

"There will be many opportunities for dealers to sell room air conditioners between now and the plan's maturing date June 1. Strong sales promotion during Christmas time may produce unexpected sales of room air conditioners as gifts," he added.

"A sudden end to cold weather in various parts of the country will find local dealers well-stocked and ready for the early buyer. The Southern market will be especially well prepared for sporadic sales during normally cool months when the weather breaks for long periods," he concluded.

Public Acceptance of Air Conditioning Leads To Amic Expansion

NEW YORK CITY—In the conviction that air conditioning has met full public acceptance and is no longer chiefly dependent upon sudden hot spells to stimulate sales, Amic Mfg. Corp., of Long Island City, maker of built-in-wall air conditioners, is enlarging its sales staff and setting up a coast-to-coast chain of dealer and distributor outlets as part of a long range marketing program, it was announced recently.

Sales, up to now on a direct-to-builder and architect basis, have been averaging around 2,000 units per month, the company said.

Unbaked Pies Get Fresh Quality by Faster Freezing

OMAHA, Neb.—Stating that women today are highly interested in frozen unbaked pies of various kinds, Del Pratt of Omar, Inc. here pointed out recently that the faster the pie is frozen, the better it conforms to the qualities of the fresh pie.

Presenting data on freezing rates, Pratt said boxed pies in stacks without circulation at -12° F. required 10 hours to freeze.. Unboxed and on pallets, they required 3.75 hours. Boxed and in an air blast (2,400 c.f.m.) in a freezer room, they required 5 hours; unboxed and on pallets under the same conditions, they froze in 2 hours.

Pratt quoted George Carlin as stating that at zero under the conditions mentioned, the freezing rates are essentially the same and that in a plate freezer at zero, boxed pies froze in 45 minutes.

Depending on sugar content, the freezing point will be 16° to 20° F., it was stated.

It was also reported that an 8-in., 26-oz. pie will bake from the frozen state in 45 to 50 minutes at 450° F. during the first 20 minutes and 400° F. for the remainder.

If pies "frost over" while waiting for the oven, objectionable wet spots may develop on the crust, according to Pratt's statement.

Warehousemen To Attend Purdue Seminar From Jan. 22 to 26

WASHINGTON, D. C. — To keep abreast of changing developments in the business of storage and handling of perishable foods, over 100 refrigerated warehousemen from all sections of the nation will attend a four-day "Advanced Seminar Training Conference" at Purdue university, Lafayette, Ind., Jan. 22-26.

The conference, which will be sponsored jointly by the National Association of Refrigerated Warehouses and The Refrigeration Research foundation, will cover new developments affecting many vital phases of refrigerated warehouse management and operation.

Featured will be discussions on mechanical handling, freezing, handling of commodities in storage, control of stored products environment, packaging, sales and public relations, engine room operations, industrial relations, and office procedures. Developments in foods irradiation will also be discussed.

Sessions will start officially on Monday, Jan. 23. A get-acquainted function will be held on Sunday evening, Jan. 22.

Reservations for the conference should be directed to the National Association of Refrigerated Warehouses, 1210 Tower Bldg., Washington 5, D. C.

Cake Batters Okay After 16 Weeks of Freezer Storage

COLORADO SPRINGS, Colo. —Tests conducted by University of Illinois researchers indicate that "the way may be clearing toward satisfactory frozen cake batters," according to The Refrigeration Research Foundation.

In the tests, Doris M. Skarha and Frances O. Van Duyne compared spice cakes frozen as baked cake and also as batter.

In the first tests, the cakes were heat-sealed in moisture-proof cellophane while the batters were packed in cartons with liners. The researchers' conclusion in this comparison was that the batter made an inferior cake.

In other tests, the batters were packed in sealed cellophane. These made markedly better cakes, it was found. And they were satisfactory after 16 weeks of freezer storage, the researchers reported.

Quality of the frozen batter cakes may have been affected not only by the package but the extent of defrosting before baking, it was noted.

Commenting on results of the tests, TRRF said: "Frozen batters are economically important because they would provide fresh-baked aroma and other qualities with maximum kitchen convenience."

Tyler Sets Up Research Department

TYLER ENGINEER in test room connects thermocouples to experimental model for temperature recordings. Each wire records temperature in different part of case. Note liquid and suction lines at left leading to remote condensing units. Lines can be hooked up to any size condensing unit from ½ hp. to 3 hp.

TYLER ENGINEER uses abrasion tester to determine "wear index" of finish.

NILES, Mich.—Creation of a new Research and Development Dept. with greatly expanded facilities has been announced by Robert L. Tyler, president, Tyler Refrigeration Corp. in a recent statement.

Chief functions of the new department are development and testing of new and better commercial refrigerators and freezers, from drawing board to pilot models; and accelerated, continuing improvement in the design and manufacture of the current product line.

The new department is staffed by experienced personnel, many of whom have had an active part in Tyler's long research and development program, it was pointed out. The department's activities will be directed by Sven Swanson, Tyler development engineer, and a Tyler man since 1944.

"Facilities include two spacious, temperature and humidity-controlled test rooms; complete set-up of machinery and tools for manufacture of pilot parts and models; latest test equipment for extensive, rigorous performance testing of all self-contained and remote-type commercial refrigerators and freezers, and condensing units, and modern drafting and engineering facilities," the company said.

Kelvinator Notes Increase In Sales Through Wholesalers

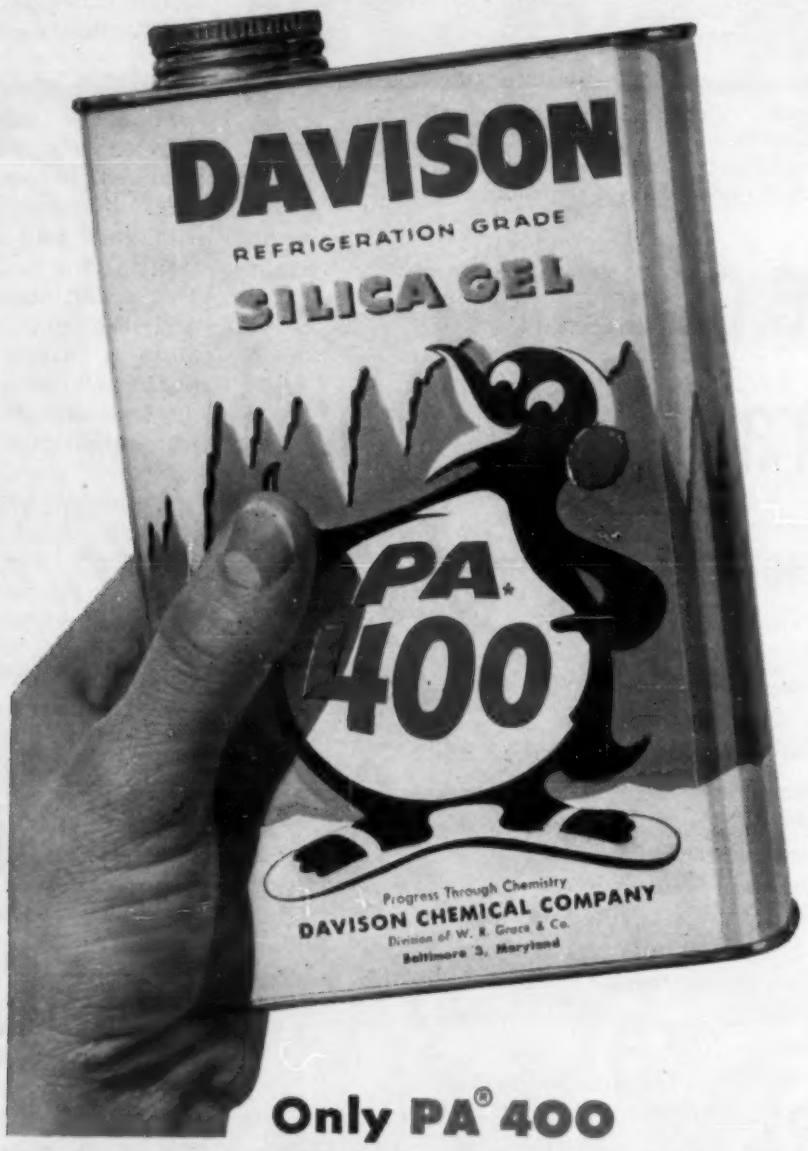
ATLANTIC CITY, N. J.— Sales of Kelvinator commercial compressors and condensing units through independent wholesalers jumped 134% during the past two years, H. C. Patterson, commercial sales manager, announced here to a meeting of key sales personnel at the ARI Exposition.

"Availability of Kelvinator products in all parts of the country through this program has been the prime factor in the tremendous sales gain," he said.

"Water cooler sales in fiscal year 1955 increased 34% over 1954," Patterson said. "Chiefly responsible for this sales boost was the 'Hot n' Cold' water cooler which dispenses both cold drinking water and hot water for instant beverages and soup."

Patterson announced also to zone and distributor personnel that Kelvinator will strengthen distribution of commercial refrigeration cabinets through hotel and restaurant supply companies. This change in distribution emphasis should produce sales results similar to those achieved with independent wholesalers handling Kelvinator compressors and condensers, Patterson said.

R. G. Alexander, commercial wholesaler manager, presided over the meeting. Others were: I. E. Weber, Cincinnati; A. J. Dombles, New York; W. A. Reinhardt, Pittsburgh; R. L. Anderson, St. Louis; N. J. Collins, P. R. Heitmeyer, and R. S. Geran, Kelvinator service manager, all of Detroit; T. W. Giller, Ebco Mfg. Co., Columbus, Ohio.



Only PA® 400 gives you all the required qualities

● HIGHEST CAPACITY ● PHYSICAL ADSORPTION NOT CHEMICAL ACTION
● DRIES REFRIGERANTS TO BELOW 2PPM AT 120°F. ● ADSORBS ACIDS ● NON-DUSTING
● MINIMUM PRESSURE DROP ● NON-DELIQUESCENT ● NO CHANNELING

Progress Through Chemistry

DAVISON CHEMICAL COMPANY
DIVISION OF W. R. GRACE & CO.
Baltimore 3, Maryland

Producers of: Catalysts, Inorganic Acids, Superphosphates, Triple Superphosphates, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAVCO® Granulated Fertilizers.

MANUFACTURER'S REPRESENTATIVES

Don't Answer If You're Afraid of Work!

But, if you think you can keep up with a factory that's got a new product-and-plans picture for 1956 so big it requires ADDITIONAL representation in all states, and if you like big earnings and can show you're now calling on the refrigeration, restaurant equipment, baker's supplies, food plan or bottler's trade, then we're ready to talk to you now!

write, wire or call . . .

HOWARD
REFRIGERATOR COMPANY, INC.
4745 WORTH ST., PHILA. 24, PA.

MARSH
Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D., Skokie, Ill.

For more information about products advertised on this page use Information Center, page 16.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

"Not now!" protested Lou. "It's not sporting to shoot sitting ducks. Give them a chance to fly up and away."

"But when I shoot," sighed the guest, "I can't hit any target, moving or still."

By Golly, We Know a Lapidarist

Old friend Bill Aulsebrook recently has been appointed Quality Control Manager of Servel's Commercial Refrigeration Div.

This seems an apt post for a man whose longtime hobby has been the delicate art of cutting, polishing, and engraving precious and semi-precious jewels.

He is a master lapidarist (which is the official word for this unusual skill). If he were a different sort of a fellow than he is, this hobby could make Bill a wow with the ladies!

How Coy Can They Get?

This deal of marking pairs of all sorts of things "His" and "Hers" reached its apex, to our way of thinking, in a Christmas gift suggestion found in a direct mail catalog,

Item: Overnight garages for parking false teeth, uh-huh, labelled "His" and "Hers."

Man of Principle

William L. McGrath, president of the Williamson Heater Co. of Cincinnati, is a man of strong convictions and high principles.

As a delegate to the International Labor Organization conclave at Geneva, Switzerland, he refused to sit with so-called "employers" from Communist countries.

Any Communist "employer" is a fake, *per se.* Mr. McGrath should be applauded for his courageously forthright stand.

Decent Cabbies

Jackson, Michigan (home of Acme, Sparton, Aeroquip, and Timken) also is the site of a state prison.

Taxicab driver there told us recently that whenever he and his brethren pick up a woman and child from the railroad or bus station, automatically they ask: "4000 Cooper?" (That's the address of the Jackson prison.)

Reason: Wives of inmates often don't tell their children that Dad is incarcerated. The kids think their father is in some sort of a hospital.

Decent, wot?

What? No Marilyn Monroe?

Beginning about now businessmen of every type—from the serviceman to the multi-plant corporation — will distribute those annual "goodwill getters," decorative calendars.

Because users want more than just dates on their calendars, this year's subject matter will range from household and beauty hints to full-color landscapes and the perennial animal and baby pictures. On the humorous side, the largest corporate chuckle may be generated by one of the oldest industrial calendars, Bill Eddy's satirical creations for Minneapolis-Honeywell's Brown Instruments Div.

This happy harbinger of the new year again will take humorous swipes at U. S. industry in 12 instalments, following a format that has built up considerable readership in the past 15 years. Each year Captain William Crawford Eddy, U. S. N. (retired)—an electronics wizard and inventor in his own right—comes up with 12 original cartoons lampooning business and spoofing customers.

Coming in for some good-natured ribbing next year will be such topical subjects as automation, electronic "brains," research, incentive work, and an industrial version of the "do-it-yourself" fad.

This year's Minneapolis-Honeywell calendar will be distributed to 55,000 U. S. businessmen and some 10,000 businessmen abroad in firms located in such countries as Great Britain, the Netherlands, Scotland, France, Belgium, Denmark, Germany, Sweden, Mexico, and Switzerland.

Send us one, please?

The Virginia Sage

From Rudy Lotz of Virginia Smelting Co.:

"While there is no indication that AFL President George Meany had anything to say about you-know-what in a recent speech, he was quoted:

" 'Fears have been expressed as to what is going to happen when the AFL and CIO become a single organization with 15 million members. One of these fears is that the merged union will be practically a monopoly, is going to run the country, push people around.

" 'I have no such fear,' Meany concluded.

"Courageous sort of feller, eh?"

From Our Mailbag

439 W. Bringhurst St.
Philadelphia 44, Pa.

Dear George:

Headline in AIR CONDITIONING & REFRIGERATION NEWS, Oct. 3, 1955:

"BUTCHERS DEMAND ANESTHETIC."

Is there no limit to the influence of the antivivisectionists?

Or are the humane societies being inhumanly humane?

More or less Sincerely,
ROBERT D. MILLER

P.S. As the leprechaun in "Finian's Rainbow" said when informed that his pot of gold had lost its power and he not only no longer had a pot to wish on, but that he would have to become mortal, "But I don't wanna be a mortal. It's too inhuman!"

Closing Thoughts

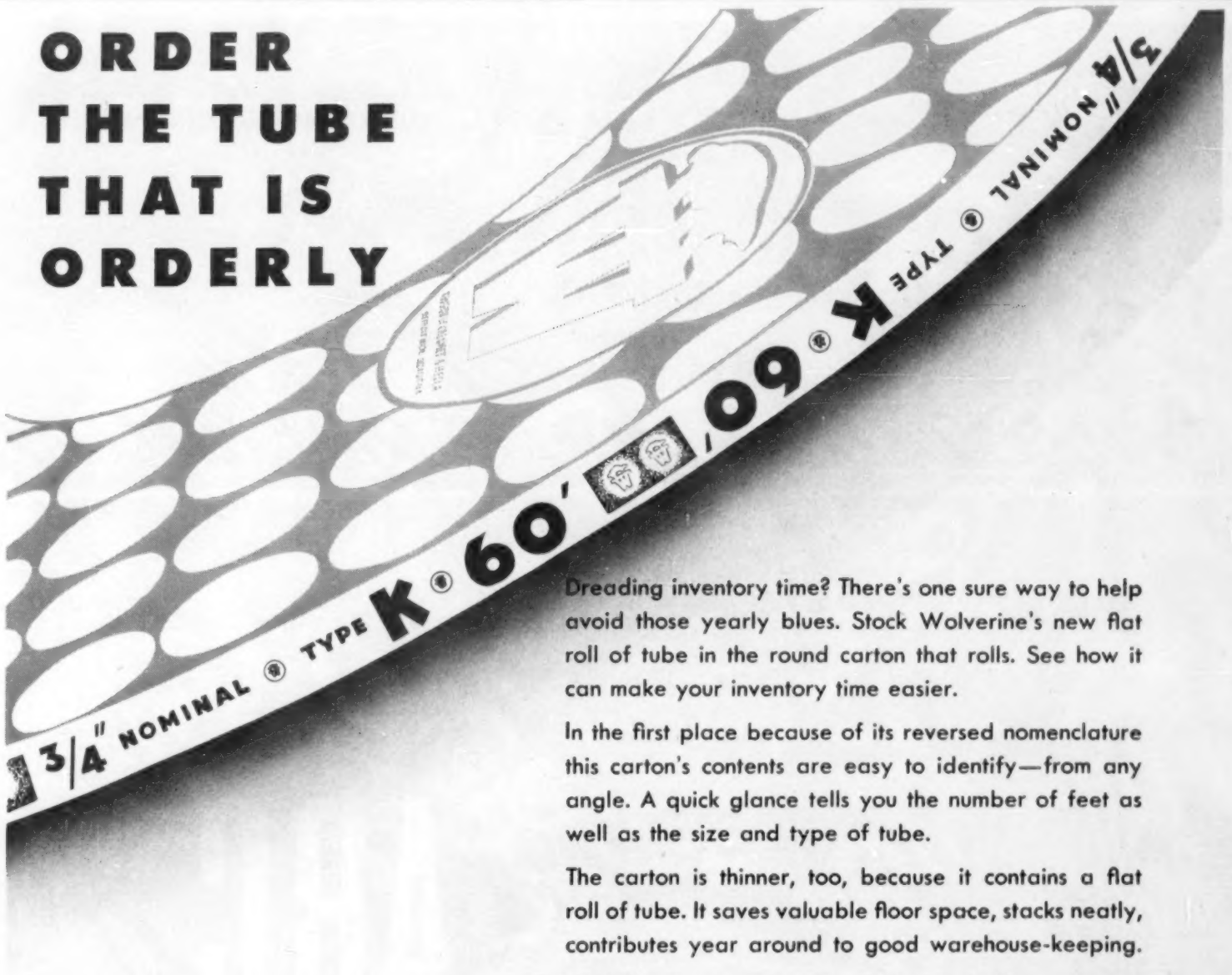
The bickering man does not count in the progress of this nation.—FORBES.

"Liberty and the pursuit of happiness go together, because each depends on the other."—WILLIAM EBENSTEIN, *Man and the State.*

"The man who is always beefing rarely brings home enough bacon."—NORMAN ATKINS.

Like the famous islanders who lived "by taking in one another's washing," we have to live by hospitably taking in one another's shortcomings. If we do so, paradoxically, there will be fewer of them—and fewer destructive types—for us and our human society to cope with.—HARRY & BONARO OVERSTREET.

ORDER THE TUBE THAT IS ORDERLY



Dreading inventory time? There's one sure way to help avoid those yearly blues. Stock Wolverine's new flat roll of tube in the round carton that rolls. See how it can make your inventory time easier.

In the first place because of its reversed nomenclature this carton's contents are easy to identify—from any angle. A quick glance tells you the number of feet as well as the size and type of tube.

The carton is thinner, too, because it contains a flat roll of tube. It saves valuable floor space, stacks neatly, contributes year around to good warehouse-keeping.

Wolverine's carton makes stock handling a cinch. Because it is round, it rolls—like a hoop. If carrying is necessary, a convenient center hole makes it easy to slip over the arm or shoulder.

Then there's the biggest dividend of all. Every day, throughout the year, this carton is building your importance as a wholesaler. It tells your customers that the only way they can purchase this tubing is to BUY FROM YOUR WHOLESALER.

All of these features very logically appeal to your customers. It's easy to sell—keeps them coming back for more. Yes, inventory is tough but it can be simplified with Wolverine's flat roll of tube that rolls. Better stock up now. Write, too, for copies of Wolverine's Want Book, Jr. A handy give-away appreciated by your customers.

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RACCA Hears Plans

BBB Proposes TV Film To Educate Public on Home Air Conditioning

A project currently under way in the industry is a proposed filmed television show which would educate the public on the advisability of having any air conditioning installations made by experienced, established contractors and dealers.

A program of this type was developed this past year by the Refrigeration and Air Conditioning Contractors Association of Houston, and it attracted the attention of the Association of Better Business Bureaus, and various divisions of the air conditioning industry.

At the recent RACCA national convention, Victor Nyborg, head of the Association of BBBs, outlined some of the thinking and plans behind the proposed TV program.

ATLANTIC CITY, N. J.—Need for consumer education on residential air conditioning, and how, with industry cooperation, the national Better Business Bureau hopes to meet that need were spelled out before the Refrigeration and Air Conditioning Contractors Association at its 10th annual meeting here by Victor H. Nyborg, president, Association of Better Business Bureaus, Inc.

"Your industry has gone a long way, and your future seems very bright. But there are some danger signals along the road ahead," warned Nyborg.

"We have devoted considerable time in our discussions of these danger signals with people in your industry. I believe we are in agreement with one another.

"Starting with a blanket statement, I would say that the biggest deterrent to your growth today is the ignorance on the part of your prospective customers as to what air conditioning actually is. Of greatest importance, therefore, is an effective program of consumer education—a project in which the Better Business Bureaus can be of help.

"For the most part, people know about air conditioning because of their contact with it in theaters, stores, and offices. They are pleased with their experiences. They know it's good. They want it for their homes," he said.

Demonstrations Under Ideal Conditions

"These people have received their demonstrations generally under ideal conditions—from installations that have been purchased by experts and installed by experts. Both the buyer and the seller knew his business.

"But this is not true when we look at the rapidly developing home air conditioning market," asserted Nyborg. "You have literally millions of prospective customers. What do they know about your product and your services?

"I submit to you that the vast majority know only the end result that they hope to get. They know nothing about capacities, loads, engineering, surveys, cost comparisons, or installations by competent, reliable workmen who are qualified to perform their services.

"Your prospective customers are the same people who, when they purchase a mechanical refrigerator find that it performs well. They have their choice of a large number of good makes, and each one is a good 'package' buy. Why, then, they ask, can't they buy an air conditioning package the same way?

"Well—the answers are obvious and I won't labor the point by reciting all the reasons. You gentlemen have them at the tips of your tongues.

"I am sure, however, that you recognize also that there are so-called sales and service people in this field of yours who don't know the answers," he said.

"Maybe it's the man who handles air conditioning as a side line or maybe he's a newcomer, the type that's attracted to a new business for a year or two but he doesn't belong and usually he doesn't stay very long. During his time in business, his poor service can give air conditioning a bad name and he can demoralize your market.

Bigger Headaches To Come In Sales, Service

"If you consider poor sales and service a problem now, prepare for even greater headaches from this source as your industry expands," Nyborg predicted.

"We saw the same thing happen in the television industry during the heyday of its growth.

"It took a lot of work by the industry and the bureau to restore a sense of sanity to its business.

Considering Consumer Education Project

"This principle applies equally to air conditioning, and we have been considering a consumer educational project which I believe you will find most interesting. It's a Better Business Bureau film on air conditioning to be produced with the cooperation of the industry and to be broadcast as a public service by television stations throughout the country.

"We propose to emphasize the positive. Maybe the best way to illustrate what we have in mind is to review with you the subject outline of a proposed film which we have discussed with executives and officers of leading associations in the air conditioning industry.

Film Explains What Makes You Feel Hot

"In broad outline, the film will proceed from an explanation of what makes you feel hot, and the effects of this on your disposition, efficiency, and well being, into a graphic demonstration of what an air conditioner does to the air (cooling, dehumidification, air cleaning, and circulation).

"With this basis established,

(Concluded on next page)

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Proposed Film-

(Concluded from preceding page)

it will then move into the details of various kinds of residential cooling equipment (room coolers, central system, etc.) and the things you need to know to select a system suited to your needs and to get a satisfactory, economical air conditioning installation.

Will Explain Various Technical Factors

"The various technical factors which must be understood for an intelligent comprehension of what air conditioning is all about will be explained, as graphically as possible, in short takes distributed throughout the film, as an understanding of each factor becomes necessary to the further development of the theme.

"Thus, the distinction between temperature and humidity, and the fact that both produce discomfort, will be clearly established in the introductory section, following which, while the explanation is still fresh in the audience's mind, the section on how an air conditioner works will begin by showing how it removes heat and moisture from the air.

"The explanation of the all-important B.t.u. on the other hand, will not occur until the latter part of the film, and will begin, not with the question of cooling capacity, but with an explanation of cooling load," Nyborg explained.

"Thus the practical need for the B.t.u. yardstick will be established before the unit itself is discussed, and the yardstick applied to the sources of heat-gain the air conditioner must combat (solar heat, occupancy, equipment, and lamp load) before it is applied to ratings of air conditioning equipment.

"In this way, it will be possible to make a series of direct connections between the load problem as it confronts the consumer and capacity standards as established by the industry, proceeding from the relatively simple case of the room cooler towards the more complex problems involved in house-wide air conditioning.

"In the same way, the question of adequate wiring, proper ductwork and outlets, and the various methods of getting rid of the heat pumped out of the house by the conditioning equipment will be left to the last, when the audience has been prepared for such questions by the discussions of load and capacity.

"Following the general scheme, the detailed content of the several sections will be something like this:

"The jumping off point will be a man who is hot, manifestly and believably hot. The question of Why will be raised, with the answer commencing with the fact that heat is a necessary by-product of human activity, even the 'activity' of just remaining alive, just as it is a by-product of the work done by an automobile engine.

"The film will demonstrate how we become overheated either as a result of high temperature, high relative humidity, or strenuous activity, or any combination of the three factors which causes the body to produce more heat than it can readily dispose of.

"The introductory section will wind up on the note that air conditioning lets you 'live the way you want to,' and is not merely a means for avoiding acute discomfort.

"The film will dwell, for a bit, on room coolers and what they do for a room, projection into a room, appearance, etc., before going on to the subject of central systems, which will be developed in much the same way," Nyborg explained.

Audience Wants To Know What Unit Fills the Bill

"This is obviously the point where the audience wants to know what kind of a unit will fill the needs it has in mind, and how to go about getting the right size and type, and is also the point for the film to begin to explain the concept of heat load in order to show what kind of 'work' the air conditioner must be capable of accomplishing.

"Varying load-factors will be illustrated by examples, such as the sun through a picture window or on the roof of a projecting room, occupancy, and so on. The need for a yardstick will be established and the explanation of the B.t.u. made. B.t.u. figures will be cited several times before any reference is made to the capacity of a unit, and then a series of examples given of capacity fitted to load.

"The importance of a reliable measure of capacity having been established, the industry standards program will be presented, together with advice on avoiding horsepower and ton comparisons. Cautions will be mentioned about inadequate wiring.

"Information will be given on house-wide loads and the capacities of central systems and a strong statement of the need for good engineering and installation services in the design of central systems, especially in the case of existing houses, along with examples of the need for eliminating heat gain from equipment such as clothes dryers, etc.

"This leaves the question of air versus water cooling, the need for adequate, insulated ducts, and, of course, the wind-up with a recap of the industry standards and Better Business Bureau suggestions.

"Better Business Bureau suggestions will be woven throughout the script where they are appropriate. These will include cautions against bait advertising and selling practices, emphasis on the importance of dealing with merchants who are known to be reliable, and stress on the need for having installations made by experts who are qualified to perform their services," Nyborg explained.

In our previous meetings with representatives of your industry, we have had good indications that a number of associations look favorably upon this project.

"I believe you will be interested in knowing our plans for distribution and promotion. Better Business Bureaus are located in 100 cities of the United States. Local television stations are members of these bureaus. It is our plan that the bureau managers will take the films to the TV station managers and offer them for public service showings.

"In your own communities, you can work with your Better Business Bureau in planning and coordinating your promotions for the largest possible viewing audience to assure the effectiveness of the message. After the film has been shown, it will remain on file with the bureau, available for local showings before civic, social and luncheon clubs, employe groups, and other special audiences.

LENNOX makes a report to its friends...

Regarding the Progress of the Company and a Change in the Company Name

There is, of course, nothing dramatically important in the simple fact that Lennox is changing its corporate name.

But the happenings that have caused the name change are important, and we thought our many friends – our thousands of dealers, suppliers and employees – would like to hear about them.

Those of us who have long been associated with Lennox – and have been so busy building heating and air conditioning equipment – are frequently surprised when we stand back to view our accomplishments in proper perspective.

It is satisfying, of course, to find that Lennox has grown to be the largest company of its kind in the world. Our growth to this position was no flash in the pan. When we landed solidly in first place it was because of our policies, people and products; and it is for these reasons that we have stayed there.

We have now entered the home cooling and air conditioning field in a big way. Already multiple thousands of homes are Lennox cooled. Leading air conditioning and heating dealers throughout America are featuring Lennox cooling equipment. At our present rate of growth in a relatively young industry, Lennox confidently expects to hit the top in residential cooling too, in a few years.

We have also added divisions for the manufacture of agricultural crop drying and processing equipment, as well as barn ventilating equipment and a number of other articles for home, farms, commerce and industry. Still other divisions concentrate on the building of special machinery, jigs, dies, fixtures and tools.

With all these developments, the time has come for a company name that properly encompasses our widespread activities. That is why as the year changes our name will change officially.

That is the only change, however – just the name. There has been no change of ownership, management, officers or policies. There has been no transfer of stock and no other company is stepping into the Lennox picture in any way.

As more people in more walks of life rely on the Lennox name, our dealers, suppliers and employees, too, will continue to share in our growth.

We are grateful indeed that in less than the span of one lifetime this company, which had its modest start literally in the heart of an Iowa corn field, has been privileged to grow up to serve so many of its fellow Americans.

John W. Norris

JOHN W. NORRIS, President

On January 1, 1956, instead of The Lennox Furnace Company, our corporate name will be...

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by

Jimmy Hatlo

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THANX AND A HATLO HAT TIP TO JOE COOK, ROUTE 5, BOX 896, MILTON, FLA.
JIMMY HATLO
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Future of Our Business Is Magnetic

Whether you manufacture or sell household refrigerators, home freezers, room air conditioners, commercial specialties, or home air conditioners, your future is BRIGHT. In addition to obvious markets, unsuspected buyers are in your camp. Samples:

Potential uses for commercial refrigeration systems go far outside home and factories. For instance, a heat pump water heater is "in the works." Theoretically, it not only heats water more economically than the conventional electrical resistance-type, but also provides a limited amount of air conditioning and reduces humidity in the basement.

And there's a two-job heat pump which warms dairy water at the same time it cools milk. Another experimental unit conditions potato and onion bins and simultaneously provides heat for sorting rooms.

In a study of the effect of environment on swine production, University of California researchers learned that maximum daily gain and maximum efficiency occurs at about 70° F. for light hogs (100 lbs.) and at 60° F. for heavier hogs (200 lbs.). Thus, another profitable use for air conditioning.

Add to those possibilities the future of pre-cooked frozen meals, refrigerated vending machines, extended use of air conditioning and refrigeration in factory production, air conditioned automobiles . . . it all adds up to a BIG Future.

Just Who Is Free and Equal?

An oft-repeated wisecrack: "Everybody is born equal, but some are born more equal than others." Truth of that witticism is being tested by a Columbia university team engaged in establishing a definition of human equality.

That won't be easy. Human equality cannot be measured by wealth any more than by physical strength, skills, or scholarship. A plumber may not be so learned as a professor of philosophy. But we doubt if the latter could install a bathroom. Furthermore, the plumber makes more money for the time he works!

Nor are equality and success to be measured by bank accounts or fame. A truly democratic yardstick should reveal how successful one is in deploying those talents with which he is endowed. Obviously, all men are not born with the same talents.

As the *Wall Street Journal* puts it:

"The truest yardstick, therefore, must be opportunity for each man to become what he wants within the limits of his abilities and the scope of his desires. And to secure this opportunity there must be equal protection of the laws which forbid one man's ambitions to trespass on another's like rights.

"This nation, by and large, has done a pretty good job in these regards and we daresay the scholars will come to that conclusion a year hence. Perhaps they will also conclude that the race is better off for the inequalities which raise high the standards not only of living but of scholarship."

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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

OFF THE CHEST

Arthur H. Malletti
14566 Mulberry
Wyandotte, Mich.

Inside Dope:

I am a mechanic and I am taking air conditioning and refrigeration on my own. I took a home corresponding course and received my diploma and letter of recommendation from the Air Conditioning Training Co., Inc.

From Youngtown, Ohio, if that means anything. They said it was good and I took their word for it. I would like to get a part-time job if it is at all possible.

I would like to get acquainted with some of the air conditioning and refrigeration men that are in the field.

Do you have any men that need part-time help? I am willing to start from the bottom and work my way up as I am new in the business and I cannot afford to quit my present job as I have been there for some time.

ARTHUR H. MALLETTI

Hussmann Refrigeration, Inc.
2401 North Leffingwell
St. Louis. Mo.

Editor:

This is to thank you for the fine reporting job you did in connection with the meeting of the Committee for CRMA and the Task Committee of the National Association of Frozen Food Packers in Atlantic City. Also for your report on the comments of George Mentley, president of NAFFP.

I am sure that your fine reporting will have served the interests of all parties concerned. I wish some of the food industry trade papers had done an equally good job of reporting.

W. J. STELPFLUG,
President,
Commercial Refrigerator
Manufacturers Association

Shirar Young
Refrigeration Corp.
1450 Van Ness Ave.
San Francisco, Calif.

Editor:

We would greatly appreciate it if you would send us any survey information and/or printed material, et cetera, you may have covering Cost of Operation Studies on Commercial Refrigeration companies.

Please direct all correspondence and/or available printed material to the personal attention of the writer.

JAMES D. BINGHAM,
Comptroller

Answer: We're assuming that you are seeking information on the Cost of Operation of commercial refrigeration distributors and dealers.

We're sending you tearsheets of the following stories which bear on this subject:

"NCRSA Reports on Commercial Dealer Operating Costs" Sept. 27, 1954 issue.

"NCRSA Reports Average Dealer Netted More, Cut Costs in '54" Sept. 26, 1955 issue.

"How To Make a Profit" (Discussion by R. S. Lafferty, vice president, Hill-York Corp., Miami, Fla.) Jan. 12, 1953 issue.

Hussmann Starts New Building

ST. LOUIS — Hussmann Refrigerator Co. has announced the start of an 85,000-sq. ft. building on the company's 21-acre industrial site at Taylor Ave. and Broadway here. Completion is predicted for February, 1956.

W. B. McMillan, Hussmann board chairman and president, states that the new facilities will represent an additional investment of over $600,000.

He also estimates this expansion will create jobs for an additional 200 administrative and production workers. Hussmann employes in St. Louis alone will then total over 2,200.

McMillan pointed out that this is the fifth addition to the firm's Taylor Ave. industrial site since the original plant for Hussmann Aircraft Div. was built in 1950.

The new building is the third "six figure" structure to be erected there within a period of 12 months. A $200,000 contemporary office building for Hussmann Refrigeration, Inc., world-wide sales organization.

Federal Refrigerator Offers Franchises

ATLANTIC CITY, N. J.—In line with its expansion program for 1956, Federal Refrigerator Mfg. Co. of Waukesha, Wis. announced the availability of exclusive Federal distributorships during the recent ARI Exposition in Atlantic City.

In making the announcement, John Romadka, president, pointed out that as a result of its modernization program of recent years, the company is equipped with the latest techniques and modern facilities, providing Federal with a completely new line of refrigerated display equipment.

In his statement, Romadka outlined Federal's ten-point program entitled "The Federal Franchise—A Blueprint for a Profitable Business." Briefly, the ten points were:

1. Continued expansion of national advertising to the ultimate user.
2. A scheduled, selective direct mail program to potential customers.
3. A detailed selling plan teaming the distributor and the Federal field man in a joint selling effort.
4. A continuing program of demonstrations, and sales meetings with the distributors' prospects.
5. Strong convention participation by the company, exhibiting equipment, store layouts, and stressing service and engineering helps.
6. Creation of modern distributor identification signs.
7. Provision of complete catalogs, data sheets, assembly manuals.
8. A program of close distributor awareness at all times of the company's national advertising and merchandising material.
9. A planned publicity program for the distributors' local area.
10. A system of providing exclusive deals arising from inquiries to the company from the distributors' protected territory.

Banker Tells Wholesale Grocers That Fixture Resale Value Is Low

CHICAGO—Clarence E. Carlson, divisional vice president of the First National Bank of Chicago, recently warned of the danger to wholesaler grocers in advancing money to retailers—against fixtures—to open supermarkets.

He addressed some 1,500 bankers at First National's annual bank correspondents conference held here.

Pointing out that many wholesale grocers are thus helping some of their better clients establish supermarkets, Carlson said this trend is not surprising in view of the closing of numerous small grocery stores.

"Heaven help them if they ever have to foreclose on the fixtures," he declared. "They depreciate rapidly, and their resale value is mighty low. Wholesalers may be justified in making moderate advances to retain business, but when they are dependent on bank credit to do so, I would, in most cases, have no part of it.

"The wholesaler's margin of profit on sales to retailers is entirely too small to warrant the risk involved in advancing his capital to the retailer for fixed asset purposes. Certainly no advances should be made where he sells the retailer less than 25% of his merchandise.

"Some wholesalers believe that where they have made advances they should be permitted to keep the retailers' books and be enabled thereby to watch their financial progress. The point is well taken."

NARGUS Reports

Retailers To Build 10,000 New Stores, Double Equipment In 1956 To Meet Increased Sales

WASHINGTON, D. C.—Members of the National Association of Retail Grocers of the United States will set a record in new store construction in 1956, building at least 10,000 new stores during the coming year, which is approximately 2,700 more than constructed in 1955, Mrs. Marie Kiefer, NARGUS secretary-manager, told the U. S. Chamber of Commerce.

Capital investment in food store equipment and machinery in 1956 will be very heavy, nearly doubling 1955 purchases in several categories, she said.

According to Mrs. Kiefer, independent grocers expect increased sales volume in 1956, due to increased population and present strong domestic demand for more expensive and highly processed foods.

Pointing out that food prices in retail stores during 1955 were slightly lower than the previous year, Mrs. Kiefer said retailers expect them to average about the same in 1956 as in 1955.

Mrs. Kiefer said that a problem of concern is the growing number of mergers in the retail food distribution industry and that NARGUS is making a study to determine whether this trend is harmful to competition.

Pak-A-Way Names Pioneer

MINNEAPOLIS—R. B. Stranahan, sales manager of the Pak-A-Way Food Freezer Div., Schaefer, Inc., announces the appointment of Pioneer Appliance Co., San Francisco, as distributor for northern California.

"Now is a good time to bring your Lehigh file up to date"—

says the LEHIGH TEAM

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Complete information and specifications on Lehigh's new PACKAGED UNITS for fleet owners, carriers, body builders, refrigeration contractors. Also includes Lehigh REMOTE TYPE truck units.

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Lists and gives full details on 10 models for new equipment and service replacement. Included is internal construction detail on what many consider to be the most reliable mechanism on the market.

Complete Catalog of Lehigh
OPEN TYPE CONDENSING UNITS

Illustrations, capacities and specifications of all Lehigh A.S.R.E. rated air cooled units, water cooled units, air-water cooled units 1/4 H.P. thru 5 H.P.

You'll want, also, Lehigh's new Parts Price List and Interchangeability Tables, Unit Price Lists, catalog and information on Lehigh Automatic Defrost Units, and other important materials. Any or all are yours for the asking! See your Lehigh jobber or write.

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For more information about products advertised on this page use Information Center, page 16.

Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers

Protecting Electric Motors Thermostatically

Those who have worked with horses and mules know that not only is there a great difference in the appearance and physical characteristics of the two animals, but that there is a wide difference in their "mental attitudes." Hitch a mule to an overload and he will give it a little try. If he decides that it is more than he should be pulling, he balks and refuses to be overloaded. On the other hand, hitch a horse to an overload, and he will pull and keep on pulling and practically kill himself, trying to pull a load that is too much for him.

A gasoline engine is a good deal like a mule; overload it and it just quits entirely, and "dies." But an overloaded electric motor, like the willing horse, will burn itself out, trying to pull a load greater than it should be pulling.

So, we have to protect the electric motor against overloads that would damage it. Fortunately, a protective device for a motor need not be a very complicated or expensive affair, so there is very little excuse for operating a motor without adequate protection.

WHAT BURNS OUT A MOTOR?

What do we mean when we say that a motor is burned out? Merely that it got so hot that the insulation on the wire and in the slots of the stator or armature, was charred and no longer insulates the current-carrying parts from one another. Other parts of the motor —springs, bearings, solder, etc. —may have been damaged also.

So, it is excessive temperature that damages a motor. That makes motor protection sound easy; all we need to do is to attach a thermostat to the motor and adjust the thermostat so that it will stop the motor if the temperature of the motor gets up high enough to damage the insulation.

This is what the "built-in" or "inherent" motor protector does. This device is essentially a thermostat whose contacts are in the main electric line to the motor. Normally, these contacts are closed, so the motor can run. If the motor gets hot enough to cause the thermostat to open its contacts, the motor stops, and stays off until the motor cools down below the dangerous temperature (the temperature at which the thermostat is set to open). The contacts then close, and the motor again runs.

AUTOMATIC AND MANUAL RESET

This type of operation is what is know as "automatic reset," that is, the thermostat simply starts the motor when it cools down to the cut-in setting of the thermostat. If the thermostat is so made that when the motor gets too hot and the thermostat opens, a switch is tripped that has to be reset by hand before it again starts the motor, the thermostatic protective device is said to be the "manually reset" type. Most built-in motor protectors are the automatically reset type.

BI-METALLIC THERMOSTATIC PROTECTOR

A thermostatic motor protective device could be made in a variety of designs, including the common bellows or diaphragm types. However, the bi-metallic type is almost universally used. The bi-metallic element, either strip or disc, consists of two pieces of dis-similar metal fused together. One metal has a much higher rate of expansion or "elongation" than the other. Consequently, as the temperature of the bi-metal rises, this metal expands faster than the other, and causes the element to bow into a curve. Electric contacts are actuated as the bi-metallic element curves, thus converting temperature change into movement.

The bi-metallic thermostat, either of the strip or disc type, is usually mounted on the "hot spot" of the motor frame, so that it can respond quickly to changes in temperature of the motor. In the case of an open-type, conventional motor, the hot-spot is often inside the frame or casing of the motor.

The bi-metallic motor protector usually has open or semi-sealed contacts, so that it is not suitable to put inside the case of a hermetic motor-compressor where the contacts would be subject to the refrigerant and oil. The protector could be in a sealed capsule, but if it had to be replaced, the motor-compressor would have to be opened.

If the motor protector were very small, and encased in a seated capsule, so that it could be buried deep in the stator winding, it would respond more sensitively to changes in temperature of the insulation on the winding. In some respects, this would be an ideal arrangement, and someday we may see motor-compressors with the motor-protector really "built-in" down in the winding.

TEMPERATURE-TIME LAG, WINDING TO PROTECTOR

If the motor protector is mounted on the case of the motor-compressor, as is common practice, it does not accurately follow the temperature down in the windings. It takes time for an overload to be sensed by the protector, for the temperature of the case where the protector is mounted, does not rise as fast as the temperature down in the windings.

On normal variations in load, even including overload, the hot-spot can be selected so that the motor protector responds fast enough to protect the windings. However, if a very heavy overload occurs rather suddenly, the windings could become dangerously hot and perhaps damage the insulation before the bi-metallic element got hot enough to stop the motor.

This is particularly likely when the motor is just starting after a prolonged idle period. Then the motor is cool, including the windings and the motor protector. If, for any reason, such as a stalled motor or very low voltage, the very heavy inrush of three or four times ordinary full load current, would dangerously overheat the windings before the excessive temperature developed in the stator, reached the motor protector on the outside of the case of the motor-compressor.

AUXILIARY HEATER FOR THE BI-METALLIC ELEMENT

To overcome this difficulty, an auxiliary heater is built into the motor protector. This consists of a small coil of resistance placed near the bi-metallic disc or strip. The current passing through this resistance develops heat, and this heat warms the bi-metallic element.

Thus, the bi-metallic element is affected both by heat from the case, and by heat from the auxiliary heater. At starting conditions, or if the motor is subjected to sudden, heavy overloads, the heat from the auxiliary heater, causes the motor protector to open and stop the motor, even though the temperature of the "hot-spot" where the protector is mounted is not high enough as yet, to affect the protector.

Bi-metallic built-in motor protectors must therefore be selected very carefully. When a manufacturer designs a new motor-compressor, he must work closely with the manufacturer of the motor-protector, so that the protector chosen will best protect that motor-compressor.

Not only must the "hot-spot" be carefully chosen, but the motor protector must be particularly adapted to the temperature-current characteristics of the motor-compressor. In some cases, the auxiliary heater must be larger than in others, even for the same cut-in and cut-out temperatures of the bi-metallic element, and even for the same normal running current of the motor.

REPLACE MOTOR PROTECTORS BY PART NUMBER

The manufacturer of the built-in protector has literally dozens of sizes, types, and ratings of protectors, several of which may carry the same current rating. It is, therefore, very important to replace motor protectors by part number, and not depend on current rating.

Clow Moves Branch To Larger Space

CHICAGO—New address of the south side automatic heating and cooling supply and jobbing division of James B. Clow and Sons, Inc. is 7625-27 S. Halsted St., the company has announced.

The new space doubles the floor area of the branch, and will enable stocking of steel pipe and fittings and cast iron fittings as well as the regular stock of fixtures and equipment. The south side branch was formerly located at 809 W. 74th St. There have been no personnel changes.

Typhoon Names Ryman

HOUSTON, Texas — C. E. Ryman will head the Houston branch of the Typhoon Air Conditioning Co., Inc., which will open a Houston office and warehouse in the M. and M. building.

"ECLIPSE" Compressors, 2, 3, 4, 6 or 9 Cylinders
Large "ECLIPSE" 9-Cyl. Compressor
"ECLIPSE" Ammonia and F-22 Compressors
Open-drive Low Pressure Units, ¼ to 15 Hp.
Accessible-Hermetic Units, ¼ thru 7½ Hp.
83 TYPES AND SIZES OF Frick REFRIGERATING MACHINES
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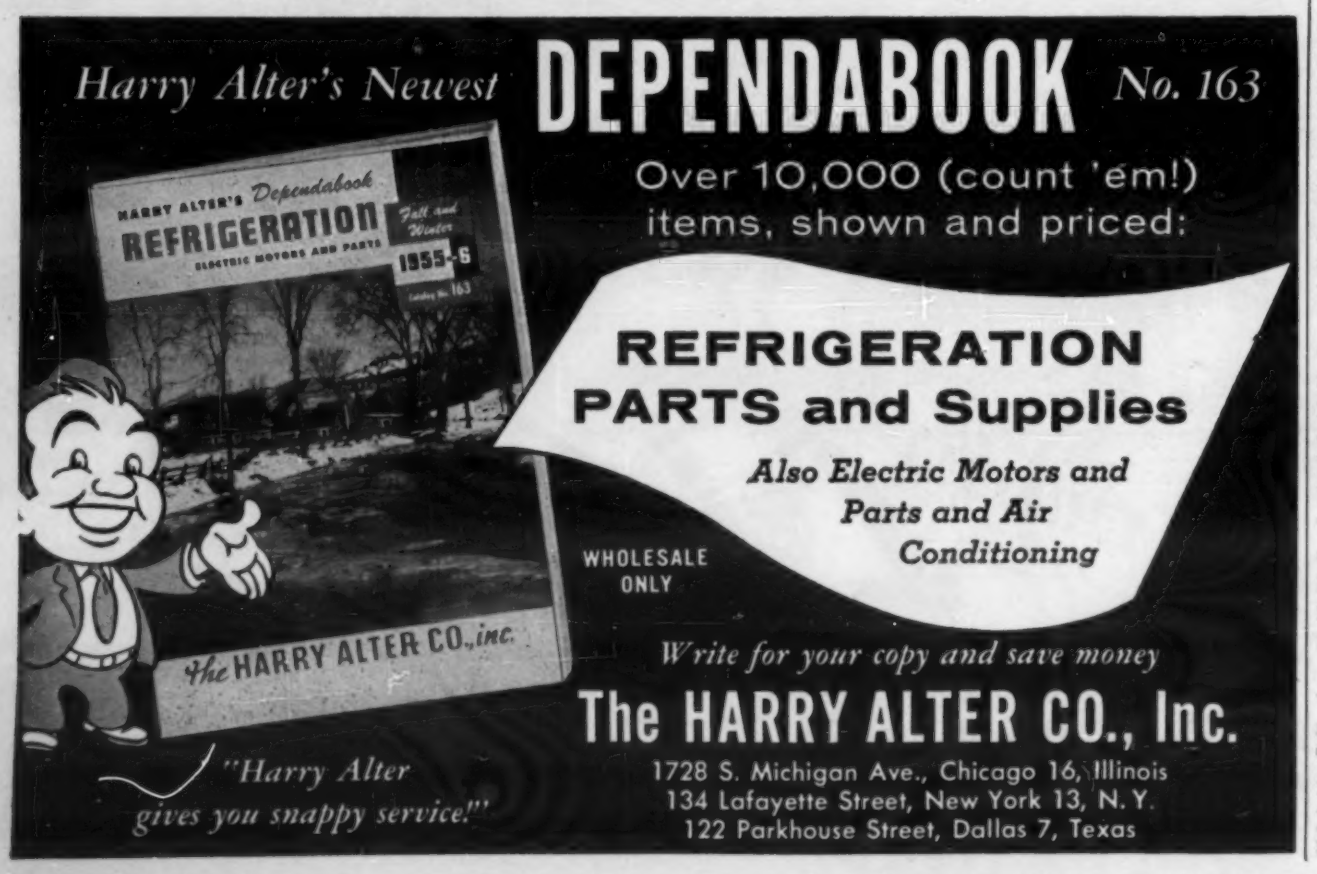
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For more information about products advertised on this page use Information Center, page 16.

Is There Basis for Distributor-Mfr. Conflict?

Joe Krall of McCray Says No, Points Out Need for United Action To Meet Price Selling Competition

ATLANTIC CITY, N. J.—"Price is a fickle friend and if given without realism can become an enemy that will destroy."

This warning was sounded by Joseph W. Krall, president of McCray Refrigerator Co., Inc., in addressing the National Commercial Refrigerator Sales Association at the group's recent annual convention here.

Krall cited incidents he said proved that "selling the product instead of price is by far the most profitable and best approach to a sale."

Calls for United Front In the Industry

The McCray executive discussed the price problem in calling for a "united front" in the industry.

"The basic problems involved in manufacturer-distributor relationships are as old as this method of sales media," he pointed out.

"But pressure for solution of these problems varies with the current economic conditions and becomes most acute when franchised territories are changed, or when net and, consequently, retail prices are no longer competitive—when mechanical or operational difficulties arise—when customers previously sold by distributors buy competitive products for reasons other than those mentioned.

"Frankly, it must be admitted, for all the pride in our ability to sell our products, I do not feel that we, either manufacturers or distributors, have done a particularly effective job in selling one another on the fact that recommended changes are for the good of all and not motivated by selfish interests.

Communication Line Has Become Fogged

"Why? Because line of communication between manufacturer and distributor have become fogged due to suspicions. Somehow—

"1. Dealers and distributors feel instinctively that manufacturers are their enemies.

"2. Manufacturers beset by labor problems, raw material fluctuations, internal strife, and government restrictions, seem to fear everybody, including their own best customers and salesmen.

"This mutually belligerent attitude is all wrong. To participate in the 'gigantic future' (as predicted by university and business economists), we should forget these 'Dime Store' attitudes and work together as a team in an industry so necessary to the 'exploding population markets' which will consummate within the next five to 15 years. . . .

"The average commercial distributor carries a payroll of seven people. Multiply this by approximately 150 distributors for one manufacturer, and he has a total of more than 1,000 trained people, strategically located to obtain the most effective results.

"How, then, is it possible for any manufacturer in this industry to fail to recognize the extreme importance of the distributor organization?

"To assist the distributors of commercial refrigerators, the manufacturers in this industry will spend this year, an estimated $1,350,000 for engineering, $750,000 for research, $1,000,000 for manufacturing efficiency . . . and an estimated $2,000,000 for advertising. . . .

"Based on the facts given, and there are many others, which—distributor or manufacturer—can justifiably say that this industry has grown from a yearly volume of approximately $17,000,000 in 1940, to an all-time high of an estimated $119,000,000 retail in 1955 without each helping to carry the other over the threshold. . . .

"Why, then, should a manufacturer feel that successful sales in a given territory was due to the design of his products, and that alone?—or a distributor feel that he and his organization could have done the job without the help of a manufacturer?

Profit Is Management's Responsibility

"Profit is another responsibility of management. Distributor and dealers and their salesmen must derive satisfactory benefits from their relationship with the manufacturer. Unless they operate profitably, year after year, we shall lose this means of distributing our products. Management must, at all times, recognize this responsibility.

"In like manner, the manufacturers' stockholders are entitled to a fair return on their investment. Profits to one and not to the other is not the answer for both groups. Distributors and manufacturers must equitably share in the profits derived if either group is to receive lasting benefit.

"Within my knowledge there has not been a single instance where a major manufacturer of commercial refrigerators shortened the profit to a distributor by narrowing its discount price structure. Nevertheless, we are told that distributor profits have become smaller.

"If both statements are true, smaller profits are directly traceable to circumstances on a local level.

"It would appear that competition between distributors has reached the point where each has forgotten individual design characteristics, outstanding quality, performance, and service of the product they represent.

"Are distributors now selling price? If so, it's indeed a sad commentary on the term 'salesmanship'. . . .

Cites Example

"Let me tell you what happened at the SMI Show in Cleveland just a few months ago.

"Our own distributor stopped at the booth to talk and when I asked about a recent job he told me that the customer hadn't decided, but it was certainly a tough one to crack, mostly because his competitor, another distributor, was in at a price that was practically giving the job away.

"Not 15 minutes later, the competitor that he was referring to also stopped in and practically his opening remark was: 'What's that distributor of yours trying to do? Donate the equipment? His price is so low I don't see how he can make any money.'

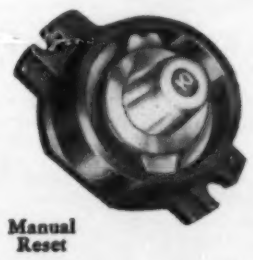
"Anytime the customer gets two distributors cutting one another's throat, by means of a lower price he, the customer, is in the driver's seat. Strangely enough, I have yet to hear the first salesman, either yours or ours, tell me that they lost the job because they were outsold—it was always lost because of a lower price.

"Believe me, a better price or a better financing term is a temporary sales tool and is extremely perishable. No competitor will stand idly by and see too many jobs go on price without meeting it and when it's met, the advantage is gone. As a result, a lower price will not continue to bring about additional sales, but will squeeze your profits and therefore becomes the greatest threat to your very existence."

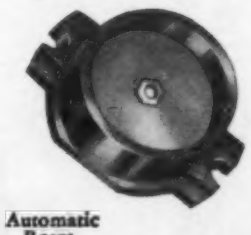
Appliance Dealer Says KLIXON Protectors Keep Customers Happy

WHITE PLAINS, N. Y.: Mr. Jack Leibert of Leibert Bros. speaks from many years of experience when he gives Klixon Protectors outstanding credit for protection. He says:

"In my 15 years in the appliance business I have found Klixon Protectors invaluable in saving motor burnouts and in consequence leaving our customers happy."



Manual Reset



Automatic Reset

KLIXON

Klixon Protectors Reduce Service Calls and Repairs by Preventing Motor Burnouts

The KLIXON Protectors, illustrated, are built into the motor by the motor manufacturer. In such equipment as refrigerators, oil burners, washing machines, etc., they keep motors working by preventing burnouts. If you would like increased customer-preference, reduced service calls and minimized repairs and replacements, it will pay you well to ask for equipment with KLIXON Protectors.

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Frigidaire Announces '2-in-1' Flexible Washers

——KEY NO. E-1240——

DAYTON—Announcing its automatic home laundry equipment for 1956, Frigidaire said new automatic washers have "two-in-one flexibility."

A simple dial control makes it possible to wash, rinse, and spin-dry small loads of regular clothes or full loads of miracle fabrics in one third less time, with one third less soap and water than required in the normal cycle, the company stated.

Frigidaire has expanded its 1956 laundry equipment to include new low-priced "Super" automatic washers and dryers. "Imperial" and "Deluxe" washers and dryers have been completely redesigned and restyled.

Imperial washers and dryers are available in two additional colors. New Mayfair pink and Sheffield gray have been added to Stratford yellow, and Sherwood green as color choices. When cabinets are in color, the tops are white.

The Imperial automatic washer is equipped with a new "Control Ring" on the "pulsator-agitator" designed to separate and open-up the clothes during the washing action. An underwater suds distributor is built into the pulsator-agitator.

Styled to match companion washers, all Super, Deluxe, and Imperial dryers feature electric timers controls that provide fully automatic drying operation. By pre-selecting any drying time up to 145 minutes, the homemaker may dry even heavy rugs without redialing or further attention, the company said. All models have a safety switch which stops the dryer operation when the door is opened.

Both the Super and Deluxe dryers are provided with extra-large full-depth lint drawers. A special baffle makes venting possible from front, side, or rear.

The top-line Imperial dryer, however, requires no venting or plumbing because it has the "Filtrator" which controls lint, excess heat, and moisture, automatically, according to Frigidaire. A variable heat control, automatic interior light, ozone lamp, and sealed heating elements are other features.

AUTOMATIC WASHERS

Model	Suggested Retail Price
WS-56 (Super)	$199.95
WD-56 (Deluxe)	259.95
*WI-56 (Imperial)	319.95

CLOTHES DRYERS

DS-56 (Super)	169.95
DD-56 (Deluxe)	219.95
*DI-56 (Imperial)	274.95

*Color exterior available at additional suggested cost of $10.

Fageol Adds Individual Unit Heating System

——KEY NO. E-1241——

KENT, Ohio—A new system of factory heating claimed to "reduce installation and operating costs and facilitate plant expansion" was announced here recently by R. D. Fageol Co.

Utilizing individual Fageol model VO-168 heat machines which can be placed in any location and vented outdoors, the plan is that any given number of these units will meet the total requirements of a plant, the manufacturer declared.

When only one section of a plant is operating, this "departmental" heating system used only the number of machines needed to heat that area. This also makes it easy to expand to serve plant additions, the company said.

Each Fageol unit is completely self-contained and has heat output of 168,000 B.t.u. an hour unvented, 130,000 when vented.

American Packs Solder Paste In Plastic Jar

——KEY NO. E-1242——

PHILADELPHIA — Soldering paste packed in a plastic jar was recently made available by the manufacturer, American Solder & Flux Co., it was announced.

"C-Flux," a new product, is now packed in a 3-oz. rigid plastic jar which has a screw cap. The cap cannot slip off or the jar become dented, the manufacturer claims.

Available in green, white, and black printed jar which has no sharp edges, Amco C-Flux cleans and fluxes in one operation without pre-cleaning, the company declared.

Apply a little flux to the joint, then solder with wire solder, and wipe with a damp cloth after the work is completed, the company recommends.

Scaife Produces Timken Home Heating Equipment

——KEY NO. E-1243——

OAKMONT, Pa.—Oil-fired Timken "Silent Automatic" home heating equipment is now coming off a new production line at the Scaife Co.'s Oakmont plant, near Pittsburgh, it was announced.

The first furnace was shipped early in October and A. V. Murray, Scaife president, said production will hit a peak this year.

This marks the first time the firm has manufactured consumer-used items. Until recently, Scaife had concentrated its activity on the manufacture of movable and stationary liquid petroleum gas cylinders and ordnance items.

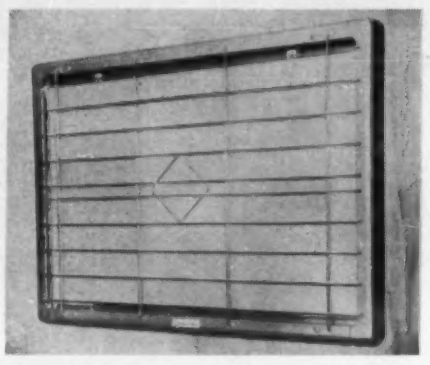
Production of Timken Silent Automatic heating units includes forced circulation warm air furnaces, conversion oil burners, oil-fired boilers, and a line of oil-fired water heaters. Scaife will also produce air conditioning equipment to be used with oil residential furnaces.

Scaife Co. has been primarily a metal fabricator since it was established in Pittsburgh in 1802. The firm purchased the Timken Silent Automatic Div. from Rockwell Spring & Axle Co. on April 1. At the same time Scaife bought the Timken Silent Automatic Div. of the Timken-Detroit Axle Co. of Canada, Ltd. All Canadian manufacturing and distribution operations are now handled through that firm, now known as Scaife Co., Ltd., of Toronto, Ont., Can.

In its U. S. operation, the company transferred machinery, tools, and key plant personnel from Utica, N. Y., to Oakmont and then moved, from Jackson, Mich., administrative personnel as well as drawings, files, and records.

Nearly 100,000 sq. ft. of space is being used for Timken Silent Automatic manufacturing and warehousing operations at the Pittsburgh area site.

Heating units are being manufactured and distributed in the United States and Canada under the Timken Silent Automatic label. Timken has been in the automatic home heating equipment field since 1925.



Marviray Features Radiant Wall Heater

——KEY NO. E-1244——

NEWARK, N. J.—An electric radiant wall heater featuring a concealed element under an anodized aluminum heating surface is being introduced by Marviray, Inc.

According to the manufacturer, the Marviray heaters show a very low initial inrush of current over their rated capacity. They do not require greater wire sizes or additional control equipment over their rated capacity when being installed.

Approved by Underwriters' Laboratories, they are available for surface mounting or recessing in walls. They are made in wattage ratings of 1,250 and 750 for operation on 115, 208, 230, and 245 volts. A five-year guarantee is provided.

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised

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WHAT'S NEW OR CURRENT LITERATURE AVAILABLE

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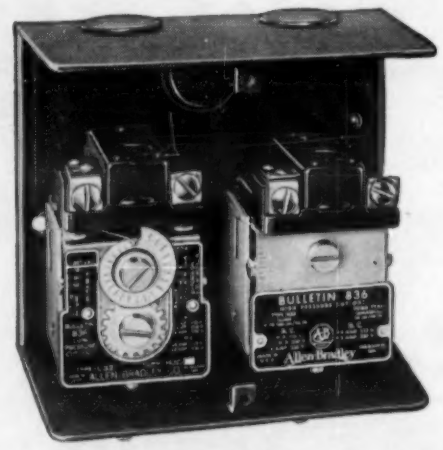

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QUALITY
SOLENOID MOTOR CONTROL

For more information about products advertised on this page use Information Center, page 16.

Mr. Heating Contractor:

Get a solid footing on big air conditioning sales and profits!

Air Conditioning & Refrigeration News Now Offers You Helpful New Air Conditioning Books

IT'S GOOD PRACTICE to know as much as possible about the business we're in, and to stay abreast of current developments in the field. For this reason, the NEWS strives to keep you posted on what's going on in the field of home comfort, and to let you know about all the new opportunities in air conditioning.

If you're planning more cooling, as well as heating jobs for next year, you'll be on the lookout for pertinent information more than ever! Chances are you're looking for material on air conditioning to help increase your own perspective—and to give your staff a better background in the field.

The Editors of the NEWS now offer
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"AIR CONDITIONING THE HOME" is a comprehensive study, just off the press, on the year-around residential air conditioning situation as it stands in 1955. It is a book you will want to keep for reference; 9" x 12" in size, well printed and abundantly illustrated—a worthy addition to your library.

"THE KEY TO AIR CONDITIONING" is a series of three manuals (K-1, K-2, K-3) that explain in everyday language, problems in air conditioning layout and installation. These books will help you sell more units, and make better installations.

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HOW TO SELL IT. You'll learn the best financing approach, and price levels of units for different types of residences. Charts show you how to estimate the cost for various types of residential construction.

HOW DOES IT WORK. You will find representative installation diagrams and operating characteristics of certain systems. Many of the pitfalls of year-around residential air conditioning work are spelled out. Examples are given on how to estimate heat gain and how to bring the customer into your confidence in making estimates.

FHA REQUIREMENTS. Here in easy-to-read layout is the text of Bulletin ME-12 for quick reference or study.

Only $1.00 per copy. Use coupon to order copies for each key member of your staff.

The Key to Air Conditioning

MANUAL NO. K-1

PROPERTIES OF AIR. Relationships between atmospheric pressure, gauge pressure and absolute pressure, temperature, specific heat.

HEAT. Flow, relation of dry-bulb, wet-bulb, and dewpoint temperatures.

HUMIDITY. Kinds, permissible relative humidities in winter, spraying required for relative humidities, tables, problems.

PSYCHROMETRIC CHART. Description, application, testing installation, dewpoint lines straight, relative humidity lines, problems.

VENTILATION. Vitiated air, mechanical means, natural means, various exposures, methods of calculation for proper amount of ventilation.

AIR REQUIREMENTS. Air motion, air requirement formulas, tables, graphs, and problems.

REFRIGERATION. Cooling and dehumidifying, proper evaporative cooling, principles of operation, design, refrigeration cycle, power consumption, selection, examples, and graphs.

FANS. Connections to motor, parts of blower fans, types, ordering, selection.

AIR DISTRIBUTION. Grilles, registers, ceiling diffusers, self-contained units, remote type units.

MANUAL NO. K-2

SHEET METAL DUCTS. Various elements of ductwork are explained in detail; flow of air in ducts, and sizing methods.

AIR CLEANING DEVICES. Types of air filters, cleaning efficiency, sizes and capacities, typical arrangements.

HEAT TRANSMISSION COEFFICIENTS. Heat transmission factors of building materials, tables of heat transmission coefficients.

COOLING LOAD. Design conditions, design wet-bulb and dry-bulb temperatures for principal cities, factors to calculate heat gain.

AMOUNT OF AIR THROUGH COOLING COILS. Advantages and disadvantages of passing all air through coils, formulas and charts.

EXPANSION COILS, VALVES, AND COMPRESSORS. Selection, recommended velocities through coils, physical data of coils.

SELECTION OF WATER COOLING COILS. Counterflow principles, dry pre-cooling coils, charts for selecting coils, physical data on water coils.

MANUAL NO. K-3

HEATING. Types of heating systems, location, design conditions, normal heat transmission, problems, steam required, exposure factors.

STEAM HEATING COILS. Selection, nomenclature, installation, air friction, condensations, problems, rating tables.

EVAPORATIVE CONDENSERS. Operation, problems in selection, general data, typical installations.

WATER-COOLING TOWERS. Types, performance, selection, friction head of water tower system, installation diagrams.

AUTOMATIC CONTROLS. Types, description, space temperature, determining type of control, compressor controls, suction pressure control, room control zones, diagrams.

PIPING — REFRIGERANT, WATER, STEAM. Types, tables for sizing, layouts, interconnecting, dynamic and static head, drain lines, steam tables, boiler horsepower, heating systems.

HEAT INSULATION AND SOUND CONTROL. Condensation, application, thickness required, types of insulation, noises in systems, effect of velocity, decibel scale.

ECONOMICS. Advantages, the survey, tonnage estimate, guesstimates for load, amortization, pricing form.

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Guide to Stories Which Ran In the NEWS In 1955

Editor's Note: Following is a listing of some of the stories and articles which appeared in the NEWS during 1955. This is by no means a complete summary of all articles, but rather some of the more significant stories. They are noted by the headline under which they appeared and are classified by general subject matter.

Copies of some of the issues are still available at 40 cents for a single copy; ten or more copies, 30 cents each; 50 or more copies, 20 cents each. Please see the accompanying box for a listing of available issues.

Air Conditioning

GENERAL

Water Problems—Proper Design and Use of Right Materials Can Help Eliminate Many Difficulties, Engalitcheff says. Jan. 3, p. 7.

Tight Control over Operation Spells Difference Between Success, Failure. Jan. 10, p. 24.

How Field Warehousing and Retail Finance Plan Promotes More Air Conditioner Sales In Winter. Jan. 10, p. 27.

Firm Finds 24% of Service Calls Related to Water Problems—Refrigeration Contractors Advised to Consider Getting Into Water Treatment Business. Jan. 10, p. 40.

Water Treatment—What Does It Do? How Is It Accomplished? and How Much Does It Cost? Jan. 24, p. 12.

What Is Solution to Water Problem?—Increasing Facilities Would Cost Cities More Than Individual Conservation Measures. March 21, p. 5.

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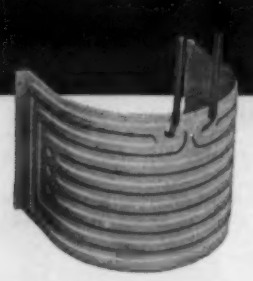

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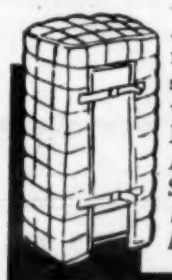

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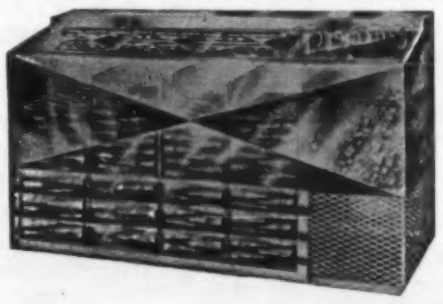

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By C. Dale Mericle

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Wholesale Distributors Air Conditioning School Builds Volume-Producing Dealer Organization—No. 1. June 6, p. 19.
Harry Price Tells 'Bull Session'—Proper Paying, Handling of Salesmen Creates Sales at List Prices. July 11, p. 6.

Exposition Pictures

Pictures covering the 9th Annual ARI Exposition appeared in the Dec. 12 issue on pages 8, 9, 10, 11, 12, 15, 18, 19, 21, 22, 23, 24, 25, 28; and the Dec. 19 issue on pages 8, 15, 16, 17, 20.

Houdaille Industries Is Firm's New Name

BUFFALO—Houdaille Industries, Inc. is the new name of the corporation which since 1929 has been known as Houdaille-Hershey Corp., it was announced by Ralph F. Peo, president.

Stockholders of the corporation approved the change as being more descriptive of the corporation's widened scope of operations, which already were augmented earlier this year by the acquisition of Frontier Industries, Inc., Buffalo.

Executive headquarters of the corporation recently were moved to Buffalo, where four of the company's 12 businesses are located.

In addition to a wide diversity of products for the automotive, aircraft, and refrigeration fields, Houdaille produces force-feed lubricators, chemical feeders, tools, defense weapons, crushed stone, and other construction materials.

It was also announced that Russell B. McNeill, who has been administrative assistant to Peo, has been elected vice president of administration.

In addition to the corporation name change, stockholders also approved a stock option plan, authorized for company key personnel and as an incentive to attract new executives.

Servicing Automobile Air Conditioners

BY C. DALE MERICLE

This is the second instalment describing the air conditioning system employed by Ford Div. of Ford Motor Co.

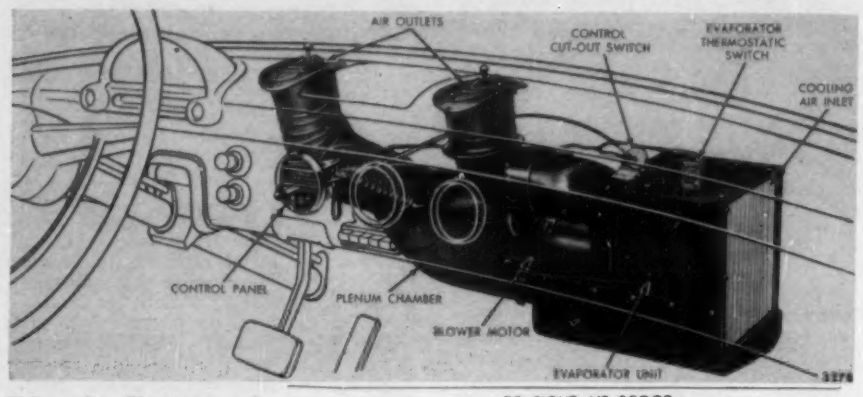

FIG. 2 — Phantom view shows location of evaporator unit, outlets, controls, etc. of 1955 Ford air conditioner.

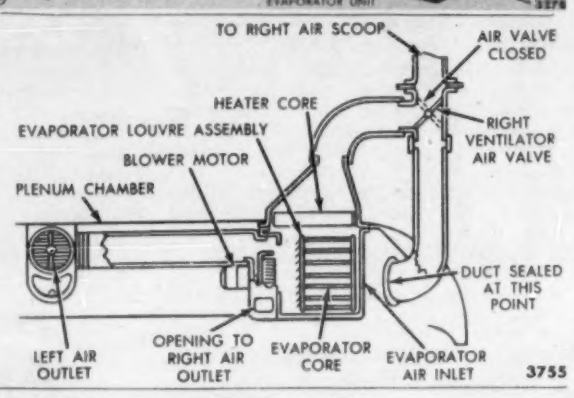

FIG. 4 diagrams air distribution system employed by Ford for 1955 system.

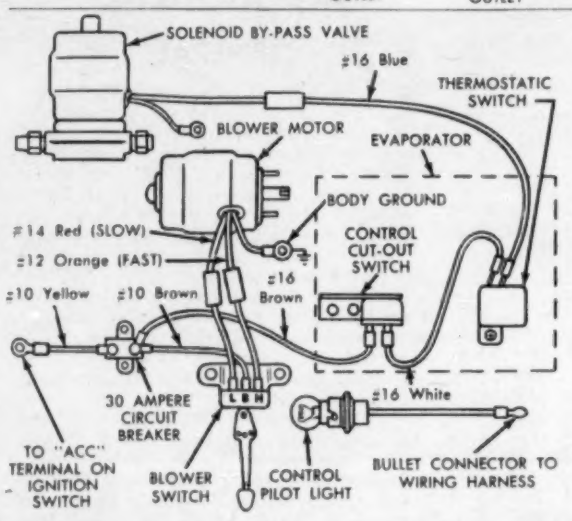

FIG. 5 is schematic wiring diagram for 1955 Ford air conditioner.

FORD (2)

Evaporator Assembly

Evaporator-blower assembly (see Fig. 2) is contained in a housing mounted on the passenger compartment side of the dash at the right. It occupies the space normally taken by the heater. In cars with air conditioning, the heater core is mounted in the engine compartment side of the firewall.

Thermostatic expansion valve is installed inside the evaporator housing. The expansion valve has an external equalizer which is tied into the suction line just ahead of the bulb location.

Blower and motor are located to the left of the evaporator housing.

Two ducts lead from the blower to air outlets on top of the cowl near the center. The air outlets have adjustable grilles so that air direction can be changed as the passengers desire.

These air outlets are also provided with a damper control rod. The outlets may be closed by pulling the damper rod all the way up, or opened by pushing the rod all the way down.

Controls

Control panel for the Ford air conditioner is mounted on the instrument panel to the right of the steering column in the opening normally used for the standard heater control. (See Fig. 3).

It consists of two levers which move horizontally. Upper lever provides selection of cooling or heating as well as the amount of each, while the lower lever controls the two-speed blower.

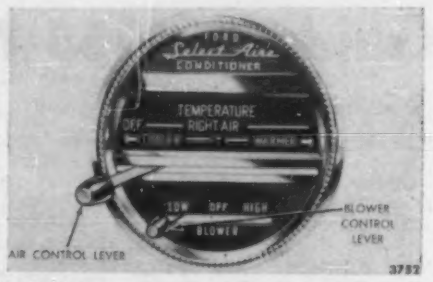

FIG. 3 is close-up of control panel for 1955 Ford "SelectAire" conditioner.

When the upper lever is in the center position neither cooling nor heating system is in coneration, but the front right air scoop is open to admit outside air for ventilation. With the lever in this position (center) the evaporator louvers are closed, the summer-winter switch is open, and the heater thermostat is closed.

To obtain maximum cooling, the upper lever must be moved all the way to the left. In this position, the right ventilator air valve is closed, the evaporator louvers are wide open, and the summer-winter switch is closed. Latter switch is mounted on top of the evaporator housing as is the thermostatic switch controlling the solenoid by-pass valve.

No cooling is obtained in the passenger compartment, however, until the lower lever which controls the blower is moved to "low" or "high."

Any intermediate position of the upper control lever between extreme left and center will start to open the right ventilator air valve and start to close the evaporator louvers, thus permitting the degree of cooling obtained to be varied by changing the proportion of outside air to recirculated air. (See Fig. 4).

When the upper control lever is moved from center position towards the right, the heater thermostat begins to open, engine coolant circulates through the heater core, and heat is obtained.

Bowden cables run from the control lever to the right ventilator air valve, evaporator louvers, heater thermostat, and the control switch on top of the evaporator housing.

During cooling, this control switch closes the circuit to the thermostatic switch and solenoid by-pass valve. (See Fig. 5).

The solenoid by-pass valve operation is controlled by the thermostat during cooling. When the temperature of the evaporator drops to the cut-out point of the thermostat, the latter breaks the circuit to the by-pass valve, which opens and thereby stops the refrigerating effect in the evaporator.

When the evaporator temperature rises to the cut-in point of the thermostat, the circuit to the solenoid by-pass valve is closed. This closes the valve and normal cooling resumes.

The thermostat may be adjusted to maintain an evaporator temperature from 24° to 45° F. It has an operating differential of 6° F. Factory setting of the thermostat, indicated by a scribe mark, is 28° F.

In addition to the controls mentioned above, there is a manually operated door on the lower edge of the plenum chamber by the blower motor. This permits cooled air to be directed towards the front seat.

(To Be Continued)

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Admiral Line for 1956--

(Concluded from Page 1, Col. 2)

straight-line cabinet design are new on the uprights while the chests, in copper exterior and "Arctic Mist" porcelain interior, feature "Dual-Freeze" control, built-in handle locks, and a special safety temperature control. Some models carry lower price tags than this year's counterparts.

An exclusive "Lifeguard" inside door release to prevent children from locking themselves in is featured on four of the 10 new refrigerators. Other line features include interchangeable fashion front color panels, "Magic Ray" lamp that prevents foods from trading flavors, and a new Arctic Mist interior color.

Richard J. Bambery, sales manager of Admiral's air conditioner and freezer divisions, said the air conditioner cabinets are styled in neutral tan. An optional pushbutton remote control can be installed at any location to operate the units.

Colormatic Pushbutton Control Panel

A colormatic pushbutton weather control panel in the three Imperial models (75F, 100F7, and 200F7) provides a choice of eight kinds of weather. Seven different colored buttons control high and low positions on four actions: cool, cool and fresh air mix, ventilate, and exhaust.

A blue button regulates the amount of cool air, a green button for cool and fresh air mix, while a gray button circulates fresh air and withdraws the stale. The weather control buttons also automatically operate fresh air and exhaust dampers.

A weather seal fashion front can be attached to the cabinet out of season. The plastic front seals out cold breezes as well as dust, smoke, or other impurities in the air, while the center panel can be painted, or covered with wall paper or drape-matching fabric, Bambery said.

All Imperial models have a permanent aluminum-mesh cleanable filter and a thermostat for automatically maintaining the desired temperature.

The new models may be flush-mounted, permitting drapes to be drawn over them. An accessory mounting kit also permits installation at any position in the window sill, as well as the upper part of the window and between walls directly under it.

Also available are kits for installing the air conditioner in picture windows and transoms.

The two deluxe models (75F5S and 100F7S), available in ¾ and one-ton sizes, contain a three-button control panel and double-duty disposable filters.

All Admiral air conditioners feature a built-in dehumidifier capable of removing up to 84 pints of water a day from moisture-laden air. Four-day directional louvers are adjustable to direct flow of air.

Suggested list prices are as follows:

Model	Size	Price
75F5S	¾-hp., Deluxe	$319.95
75F5	¾-hp., Imperial	349.95
100F7S	1-hp., Deluxe	329.95
100F7	1-hp., Imperial	359.95
200F7	2-hp., Imperial	459.95
75FCB	¾-hp., casement	369.95
100FC7	1-hp., casement	429.95
75FW5	¾-hp., in-the-wall	359.95
100FW7	1-hp., in-the-wall	419.95

In the freezer line, one of the uprights, model 14U65, is offered in standard white and in three optional exterior cabinet colors at $10 extra. The colors are shell pink, sea mist green, and primrose yellow.

The two other models are supplied with a kit of interchangeable fashion front panels in five colors. These are metallic pink, metallic green, metallic yellow, canyon copper, and chromium.

The adhesive backed panels are cut to exact size to fit the recessed top section of the freezer door, Bambery said.

Triangular refrigerant tubing forms the shelves on all three uprights and provide maximum quick-freezing service, he added. The open-shelf design, he explained, permits free circulation of cold air throughout the interior, resulting in uniform low temperatures from top to bottom.

The 10-cu. ft. upright model 10U45 has a food capacity of 350 lbs., four shelves, and two removable baskets on the inner door.

The two deluxe uprights, 12.4 and 13.8 cu. ft., have frozen food capacities of 435 and 483 lbs., respectively.

Upright Freezers Have Touch-a-Magic Handles

These upright models also feature the new touch-a-magic door handle, which opens the door at the slightest touch, and a full-width glide-out storage basket with 33 lbs. capacity to accommodate bulky and odd-shaped packages.

The 12.4-cu. ft. upright has four fast-freezing shelves, plus a removable basket and three shelves on the door, while the 13.8-cu. ft. model contains an additional shelf in the main storage compartment as well as on the door.

All uprights feature "Dial Temp" control with unlimited settings to adjust temperature anywhere from sharp freezing to regular frozen storage.

The three chest freezers (13, 17, and 20 cu. ft.), with capacities of 460, 590, and 710 lbs., respectively, have been restyled to blend with cabinets and work surfaces in built-in kitchens.

They contain a Dual-Freeze compartment providing a separate area for fast-freezing food.

A special safety temperature control makes it impossible to turn off the unit completely with this control alone.

Recessed toe space across the bottom on all models allows the homemaker to stand directly against the cabinet when loading or unloading food without marring or scuffing either her shoes or the cabinet.

Covered by a five-year warranty, Admiral's "Penny-Pincher" compressor, which never requires oiling, is featured throughout the line.

Suggested list prices for freezers are as follows:

Model	Capacity	Price
10U45	10-cu. ft. upright	$199.95
12U55	12.4-cu. ft. upright	379.95
14U65	13.8-cu. ft. upright	429.95
13F46	13.2-cu. ft. chest	399.95
17F59	17-cu. ft. chest	499.95
20F71	20-cu. ft. chest	549.95

The 12.4-cu. ft. upright is priced $20 lower than the current model, while the 13.8-cu. ft. upright is down $50, and the 13.2-cu. ft. chest is down $30.

Lifeguard Door Release Glows In Dark

B. H. Melton, sales manager for the refrigerator division, declared that the new Lifeguard door release, on all Dual Temp models, is the culmination of three years' development work. It glows in the dark and, should a child enter the refrigerator and accidentally shut the door, he has only to touch the luminous button to get out.

Refrigerator Line Has 6 Dual Temp Models

The refrigerator line includes six "Dual Temp" models that do not require defrosting, two automatic defrosting refrigerators, and two conventional models.

The non-Dual Temps are available in 7.3 and 9.2-cu. ft. sizes. The conventional 7.3-cu. ft. box is offered in a choice of four colors for only $169.95. Automatic defrosting adds $30 to the price.

Other line features include a bacon keeper with 2-lb. capacity, large butter and egg chest, snack compartment for leftovers, square tops, and a new fourth exterior color — shell pink. The other exterior colors are sea mist green, primrose yellow, and white.

EXCLUSIVE refrigerator inside door release has been developed by Admiral engineers as a solution to the problem of children getting trapped in refrigerators. Michael Brent is showing Suelen Helland the new Lifeguard release which glows in the dark and opens at the slightest touch. The special door mechanism is incorporated in the company's new line of refrigerators.

NEW 10 cu. ft. Admiral upright freezer (Model 10U45) has a frozen food capacity of 350 lbs., four high-speed freezing shelves and two removable door racks for frozen food and juice. Listing for $199.95, the freezer is offered in exterior colors of shell pink, sea mist green, and primrose yellow, as well as standard white. Porcelain enamel interior is styled in new Arctic Mist tone.

Optional with most models is a fashion kit for decorating the recessed upper section of the refrigerator door with pre-cut, adhesive-backed debossed panels in the same colors as described for the freezers.

The Dual Temp combination refrigerator-freezer is produced in single, two-door, and up-side down models, each featuring an exclusive freezing system without moving parts or solenoid valves. A restrictor tube provides two different temperature zones with only one primary system. Fresh foods can be stored uncovered in the "Moist Cold" compartment without drying out, Melton claims.

Each Dual Temp freezer compartment has a bottom freezing surface and a separate shelf with triangular freezing coils to insure faster freezing.

Freezer Compartment Completely Sealed Off

The freezer compartment is completely sealed off and separately insulated from the rest of the refrigerator. The interior is of insulating high impact polystyrene that does not collect frost, is rustproof, and easy to clean. Even the freezer door is insulated with a thick layer of Fiberglas.

The freezer chest in the 12¼-cu. ft. up-side-down combination has a capacity of 120 lbs. of frozen food. Tarnish-proof canyon copper trim is used throughout. The Dual Temps never require defrosting and contain every deluxe feature including magic ray lamp, bacon keeper, three glide-out shelves plus a two-position adjustable shelf, and door shelves.

PUSH BUTTON controls and flush-mounting highlight the new line of Admiral room air conditioners. Seven different colored buttons are said to provide a choice of weather. Cabinets are styled in neutral tan to blend with any decor. Units can be installed in the wall, in picture windows, and transoms with special installation kit. Optional push button remote control also is available. All Admiral air conditioners contain a built-in dehumidifier.

Suggested list prices for refrigerators are:

Model	Size	Price
D800	7.3-cu. ft. conventional	$169.95
DA805	7.3-cu. ft. automatic defrosting	199.95
DA979	9.2-cu. ft. conventional	269.95
DA980	9.2-cu. ft. automatic defrosting	289.95
C1100	10.3-cu. ft. 1-door Dual Temp	359.95
C1200	11-cu. ft. 1-door Dual Temp	399.95
CU1205	11-cu. ft. Upside-down Dual Temp	449.95
IU1305	12¼-cu. ft. Upside-down Dual Temp	529.95
CT1202	11.2-cu. ft. 2-door Dual Temp	449.95
IT1302	12.4-cu. ft. 2-door Dual Temp	529.95

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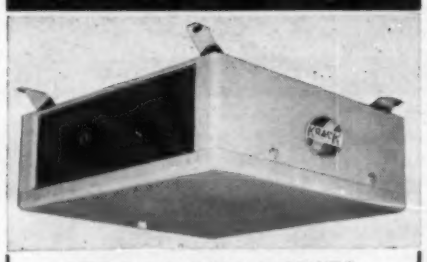

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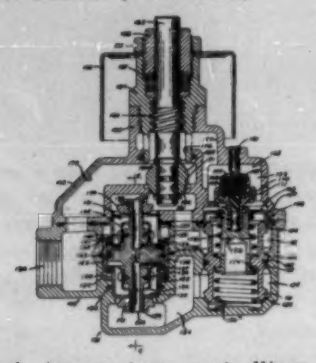
PATENTS

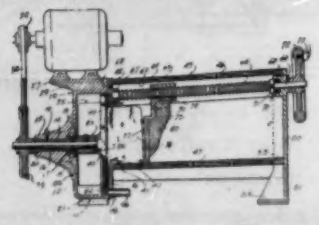
Week of August 2 (Concluded)

2,714,488. MIXING VALVE. Adolf Von Wangenheim, Detroit, Mich., assignor to Detroit Controls Corp., Detroit, Mich., a corporation of Michigan. Application Oct. 15, 1952, Serial No. 314,818. 4 Claims. (Cl. 236—12.)



4. A temperature controlling valve comprising a casing having a lower portion and an upper portion, said lower portion having a hot liquid inlet and a cold liquid inlet, flow equalizing valve means controlling flow through said inlets, means responsive to pressure of the liquid entering said inlets and operable to actuate said equalizing valve means, means forming an annular valve seat, first and second conduits leading from said equalizing valve means, said first conduit conveying hot liquid to said valve seat, a second valve seat spaced from and concentric with said first valve seat, said second conduit conveying cold liquid from said equalizing valve to said second valve seat, a tubular valve member having its opposite end portions engageable alternately with said seats, means to guide said tubular valve member, a pair of spring means within said tubular valve member and acting in opposition to each other, thermostatic means responsive to the temperature of the liquid flowing through said valve seats and operable to move said tubular valve member to reduce flow through said first-named valve seat upon temperature increase, one of said spring means opposing such movement of said tubular valve member, the other of said spring means acting with said thermostatic means to urge said tubular valve member toward said first named valve seat, abutment means within said upper casing portion and positioning said thermostatic means, means to adjust said abutment means to determine the temperature at which said tubular valve member will engage said first-named valve seat, a conduit in by-pass relation to said tubular valve member and leading from said second conduit for conveying cold liquid, said casing having an outlet, and valve means controlling flow of mixed hot and cold liquid and of cold liquid from said by-pass conduit to said outlet.

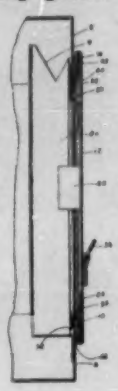
2,714,490. ICE SHAVING MACHINE. George W. Prechter, New Orleans, La. Application Dec. 21, 1951, Serial No. 262,711. 4 Claims. (Cl. 241—92.)



1. In an ice shaving machine, a hollow cylindrical cutter rotor chamber having opposed inner and outer end walls and a peripheral wall, said inner end wall having an opening through which a body of ice to be shaved can be exposed, a cutter rotor journaled on said outer end wall, said cutter rotor comprising a circular plate having a peripheral edge running close to the peripheral wall of the chamber, said circular plate having an inner side running close to said inner chamber end wall and an outer side spaced from the outer chamber end wall, circumferentially spaced radial vanes fixed on and projecting at right angles from said outer side of the circular plate, said vanes being proportioned to occupy the space between said outer chamber end wall and the circular plate and having radially outward edges running close to the peripheral wall of the chamber, radial slots in said circular plate between adjacent vanes, and radial blades on said circular plate having shaving edges projecting through the slots, said blades being disposed at angles to the plane of the circular plate.

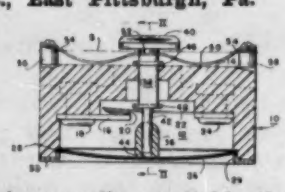
2,714,546. CLOSING PLATE FOR PAD OPENINGS OF EVAPORATIVE COOLERS. Roman M. Lesniak, Phoenix, Ariz. Application July 27, 1953, Serial No. 370,419. 2 Claims. (Cl. 312—296.)

2. A closing plate for evaporative coolers having cases with rectangular pad openings surrounded by flanges consisting of a rectangular flat metal plate having an inner face and an outer face, resilient gasket material secured to the inner face of said plate adjacent the perimeter edges thereof to provide a sealing gasket between the



inner face of said plate and the outer faces of said case flanges, a lifting handle on the outer face of said plate, and resilient cleats attached to the inner face of said plate adjacent the top and bottom edges thereof, retaining said plate on said case flanges, said cleats having offsets so that their outer portions will extend under the top and bottom flanges of said cooler case; the upper offsets of the cleats adjacent the upper edge of said plate being disposed so that said plate may be pushed upward on the top flange of said case to permit movement of said cleats adjacent the bottom edge of said plate over the top edge of the bottom flange of said case, and a vertically extending laterally disposed fin on the inner face of said plate engaging lateral portions of said cooler case to prevent transverse displacement of the said plate on said case fingers.

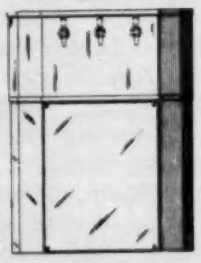
2,714,644. THERMOSTAT APPARATUS. John W. Harrison, Meadville, Pa., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.



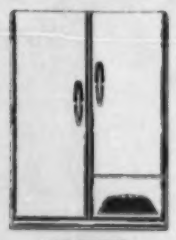
1. A manually resettable thermostat comprising a support, a snap-acting bimetal member carried by said support, a pair of mating contacts, means actuated by said bimetal to disengage said contacts in response to change in temperature, a push rod having an end portion adapted to abut said bimetal member, and an over-center snapping spring member adapted to snap to a position of rest on either one side or the other side of its snap-over center, said spring member being connected to said push rod and to said support, said bimetal member being manually movable by said push rod in one direction and movable in the opposite direction in response to change in temperature to impart to said push rod an initial movement sufficient to move said spring member beyond said snap-over center, said spring member thereby snapping to said other side and imparting additional movement to said push rod, said actuated means being so constructed and arranged as to be movable in said opposite direction independently of said push rod.

DESIGNS

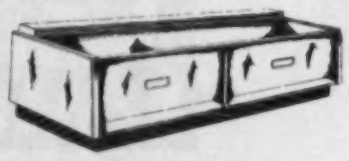
175,250. BEVERAGE DISPENSER. John E. Faust, St. Louis, Mo. Application Nov. 9, 1953, Serial No. 27,515. Term of patent 7 years. (Cl. D2—3.)



175,264. COMBINED REFRIGERATOR AND FREEZER. John Licinit, Essington, and Anthony D'Alessandro, Philadelphia, Pa., assignors to Jordon Refrigerator Co., Philadelphia, Pa.

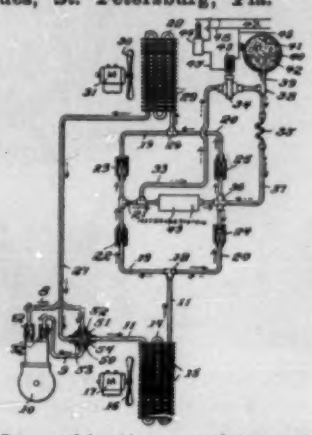


175,276. REFRIGERATED DISPLAY CASE. Sheldon Rutter, Evanston, Ill., assignor to Tyler Refrigeration Corp., Niles, Mich., a corporation of Michigan. Application Feb. 19, 1954, Serial No. 29,114. Term of patent 3½ years. (Cl. D80—11.)



Week of August 16

2,715,317. AUTOMATIC CONTROL FOR A REVERSIBLE HEAT PUMP AND AIR CONDITIONER. Robert L. Rhodes, St. Petersburg, Fla.



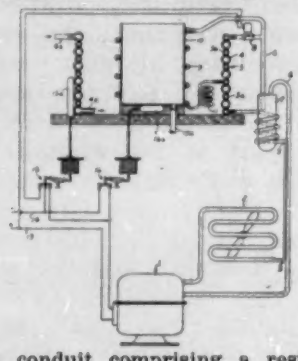
5. In combination, a refrigerant compressor, a valve mechanism connected to said compressor, a first conduit extending from said valve mechanism, a portion of said first conduit being shaped to define a coil, a first fitting connected to said first conduit, a second and third conduit connected to said fitting, a pair of spaced apart valves interposed in each of said second and third conduits, a branch line interconnecting said second and third conduits together and joined to said second and third conduit at the space intermediate the respective pairs of valves and having a metering device therein, a second fitting connected to the junction of said second and third conduits, a fourth conduit extending from said second fitting to said valve mechanism, a portion of said fourth conduit defining a coil, a fifth conduit connected to said branch line at a point intermediate the second conduit and said metering device, a sixth conduit connected to said branch line at the opposite side of the metering device from said fifth conduit and said sixth conduit being also in communication with said third conduit, and a tank communicating with said fifth and sixth conduits.

2,715,318. SEALED SYSTEM WITH REVERSE CYCLE DEFROSTING. Clinton Millman, Greenville, Mich.

14. In a domestic electric refrigerator, a refrigeration fluid system comprising an evaporator, a condenser, a compressor, valve mechanism and means for equalizing the pressure between said condenser and said evaporator during periods in which said compressor is not being driven, means for driving said compressor, said valve mechanism having a normal refrigerating position in which it connects said compressor to pump fluid from said evaporator to said condenser and having an evaporator defrosting position which it connects said compressor to pump fluid from said condenser to said evaporator, an actuator for urging said valve between its said positions, said valve mechanism including elements responsive to the differential in pressure between said evaporator and said condenser, said elements being effective to prevent movement of said valve by said valve actuator when the pressure differential between said evaporator and said condenser is above a predetermined magnitude, a compressor control device for rendering said compressor driving means effective and ineffective to drive said compressor, a valve control device for actuating said valve actuator whereby said valve is urged in a direction to move from said normal position to said defrosting position, means actuating said control devices to provide for operation of said control devices in a desired sequence, said sequence including a first interval in which said compressor control device maintains said compressor ineffective to establish said predetermined magnitude of pressure difference and said valve control device is maintained effective to urge said valve mechanism to said defrosting position whereby said valve mechanism moves to said defrosting position during a period in which said pressure difference is below said predetermined magnitude, said sequence further including a second interval following said first interval in which said valve control device continues to be effective to urge said valve mechanisms to said defrosting position and said compressor control is actuated to establish operation of said compressor.

2,715,319. TWO-TEMPERATURE REFRIGERATION APPARATUS. Frank O. Graham, Detroit, Mich., assignor to Temprite Products Corp., Birmingham, Mich.

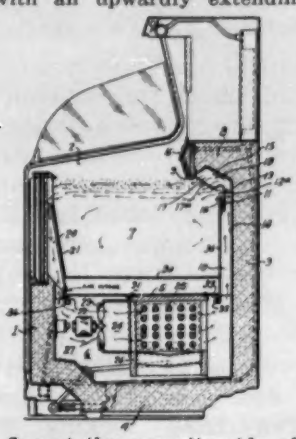
1. In refrigeration apparatus of the type having compressor, condenser and expander elements connected in a closed circuit, the combination of a compressor; an electric motor connected to drive the compressor; a condenser connected to the refrigerant discharge of the compressor; a high-temperature evaporator comprising series-connected lower and upper sections in free communication with each other, the lower section having a refrigeratant inlet and the upper section of refrigerant outlet; a liquid refrig-



erant conduit comprising a restrictor means connecting the condenser to the lower section inlet of the said evaporator; a low-temperature evaporator; conduit means comprising a restrictor means connecting the upper part of the lower section of the high-temperature evaporator to the refrigerant inlet of the low-temperature evaporator; suction conduit means connecting the refrigerant outlets of the two evaporators to the suction side of the compressor and rendering said evaporators simultaneously subject to the suction thereof; an electro-magnetically operated valve controlling the suction outlet of the high temperature evaporator; and electric switch devices for controlling supply of current to the compressor motor, the said devices comprising two thermostatically controlled switches one of which is associated with and responsive to the temperature of one of the two evaporators and the other of which is similarly associated with and responsive to the temperature of the other evaporator and operatively connected to supply current to the coil of the electromagnetically operated valve and each of which switches is connected to supply current to energize the motor when the evaporator temperature to which it is responsive rises to a predetermined maximum value and disconnected to cut off such current sup ply when said temperature falls to a predetermined minimum value; whereby by opening the said valve when the compressor is operating the refrigerant returned to the compressor will be drawn substantially entirely from the high-temperature evaporator and by closing the valve when the compressor is operating the refrigerant returned to the compressor will be drawn wholly from the low-temperature evaporator.

2,715,321. OPEN-TOP REFRIGERATED DISPLAY CASE. Ralph J. Burger, Kendallville, Ind., assignor to McCray Refrigerator Co., Inc., Kendalville, Ind.

1. In a refrigerator cabinet having an open-top compartment and an air chamber therebelow with a return air flue from said compartment to said chamber at one side of the compartment with its inlet near the top thereof substantially throughout its length, and with an upwardly extending air



outlet flue at the opposite side of said compartment to said return flue, and means for creating an air circulation through said flues and cooling the air passing through said outlet flue, the improvement which comprises the provision in at least the upper end portion of said outlet flue, of a partition dividing said portion of the flue into inner and outer branches relative to said compartment, said inner branch having discharge provision at its upper end for directing a stream of air across the upper portion of said compartment toward said return flue inlet and said other branch having a pressure reducing expansion chamber at its upper end for the expansion of air received from said outlet flue and having an opening for the discharge of a stream of air from such chamber over said first stream and toward said return flue inlet whereby a stream of low velocity cold air from said expansion chamber forms a protecting blanket entirely across said compartment over a stream of cold air of relatively higher velocity from said inner branch.

2,715,322. ABSORPTION REFRIGERATION. Axel Harald Ostergren and Karl Gunnar Boren, Stockholm, Sweden, assignors to Aktiebolaget Elektrolux, Stockholm, Sweden, a corporation of Sweden. Application Sept. 25, 1951, Serial No. 248,126. Claims priority, application Sweden Oct. 3, 1950. 7 Claims. (Cl. 62—119.5.)

1. In absorption refrigeration apparatus, a generator comprising a shell having a first end wall at one level and a second end wall at a higher level and an upstanding side wall connecting said first and second end walls, a single body of insulating material retained in said shell between said first and second end walls, a vertically extending heating tube embedded in its entirety in said body of insulating material between said first and second end walls, the end of said heating tube nearer to said first end wall being spaced therefrom and the end thereof

(Continued on next page)

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POSITIONS WANTED

SALES ENGINEER, age 35, 10 years' sales and managerial experience on commercial air conditioning products. Fully experienced in establishing and building distributor and dealer operations. Has proven sales record. Desires position with air conditioning manufacturer with opportunity to locate in North Central or Western U. S. Write BOX A5412, Air Conditioning & Refrigeration News.

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KECO IS interviewing engineers with experience in thermodynamics, calorimeter and psychometric testing, refrigeration and sheet metal design. Openings also for recent engineer graduates with refrigeration training as project engineers. Address applications to William J. Downs, Chief Engineer, KECO INDUSTRIES, INC., Cincinnati 25, Ohio.

MANUFACTURER'S REPRESENTATIVE with commercial refrigeration experience now covering midwestern and southwestern states to sell fast going line of commercial equipment. Write: PAUL R. STEWART, 1712 John Street, Cincinnati 14, Ohio.

SALES ENGINEER—Opportunity for recent graduate with ME degree. New York City area and Westchester. No extensive travel. Salary and commission. Air conditioning and refrigeration field with challenging growth possibilities and advancement. Please submit detailed resume. Replies held in strict confidence. BOX A5413, Air Conditioning & Refrigeration News.

REFRIGERATION AND air conditioning engineer: Excellent opportunity for overseas location with well-established distributor of prominent American manufacturers. Must have administrative ability. Write indicating qualifications and be prepared for interview early January. BOX A5414, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

NEW AJAX Electric Iceman parts available under factory list. Write AJAX PHILADELPHIA, INC., 3617 Lancaster Avenue, Philadelphia 4, Pa.

REFRIGERATION VALUES: Attention servicemen; send for our catalog of refrigeration parts; savings up to 50%. WALTER W. STARR REFRIGERATION SUPPLIES, 2833 Lincoln Ave., Chicago 13, Illinois.

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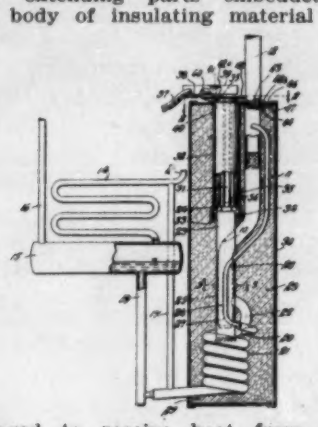
For more information about products advertised on this page use Information Center, page 16.

PATENTS

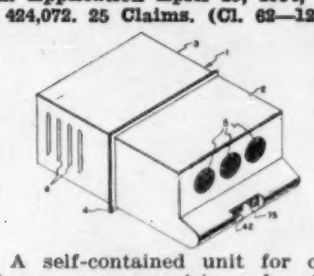
(Continued from preceding page)

nearer to said second wall being spaced therefrom, said heating tube being formed of material having good heat conductivity and providing a heat transfer surface, an electrical heating element positioned in said tube for heating the latter, a circuit absorption liquid including a plurality of vertically extending parts embedded in said body of insulating material and



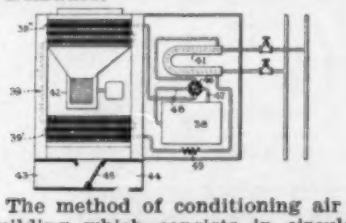
arranged to receive heat from said heating tube, one of said parts serving as a boiler and another as a vapor lift tube, said shell having an opening in one of the first and second end walls thereof, hollow structure embedded in said body of insulating material to provide a permanent passage therein connecting the opening in said one end wall and one end of said heating tube, said passage being coaxial with said heating tube and having a cross-sectional area throughout the length thereof of adequate size for inserting and withdrawing said heating element into and from said heating tube through the passage, an insulating member which is disposed in said passage and removable therefrom independently of said heating element to gain access to the latter through said passage, and means including said independently removable insulating member, when the latter is positioned in said passage, for retaining said heating element in position in said heating tube.

2,715,324. AIR CONDITIONING APPARATUS HAVING CONTROL MEANS. Stanley E. Rose and Elmer E. Heimo, Erie, Pa., assignors to General Electric Co., a corporation of New York. Application April 19, 1954, serial No. 424,072. 25 Claims. (Cl. 62—129.)



1. A self-contained unit for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit mounted in said outer compartment, an evaporator mounted in said inner compartment, blower means for blowing a stream of air across said evaporator and into said room, means defining an intake passageway in said inner compartment leading to the intake of said blower means, a pair of room air intake ports leading from said room into said passageway, an outside air intake port for bringing outside air into said room comprising an aperture in said barrier opening into said passageway, a first damper for controlling the flow through one of said room air intake ports, a second damper for controlling the flow of air through the other of said room air intake ports and said outside air intake port, and manually operated means for simultaneously positioning said dampers to vary the intake flow through said ports to said blower means thereby to apply different conditioning effects to said room.

2,715,514. AIR CONDITIONING UNIT. William S. Stair, York, Pa., assignor to York Corp., York, Pa., a corporation of Delaware.



2. The method of conditioning air in a building which consists in circulating a liquid heat exchange medium to a plurality of heat exchangers, connected in parallel flow relation, and selectively and individually operating said heat exchangers as the heat absorbing or heat dissipating surface of a reversible refrigerating unit; controlling the temperature at which said liquid is supplied thereto so that the maximum is less than the maximum permissible for cooling any of the heat dissipating surfaces which it contacts and circulating air in heat exchange relation with the other heat exchange surfaces of said units.

Government Contracts

ARMY

Headquarters, Oklahoma City Air Materiel Area, Tinker Air Force Base, Oklahoma City, Okla. Attn.: Procurement Division OCPPBB.

AIR CONDITIONING AND ACOUSTICAL CEILING, Building No. 1, Tinker Air Force Base, Oklahoma City, Oklahoma—Job—IFB 34-601-56-229B—Bid Opening 30 Dec. 55.

Purchasing Division, Rocky Mountain Arsenal, Denver 2, Colo.

CONSTRUCTION OF ADDITIONAL COOLING TOWER and connection to existing services—Job—IFB CML C-05-021-56-20B—Bid Opening 5 Jan. 56.

Headquarters Air Materiel Command (MCPSDC-2), Wright Patterson Air Force Base, Ohio.

Following items are procured under IFB 56-5102—Bid Opening 27 Dec. 55.

COOLER REFRIGERATION AND HEATING UNIT WATER THERMOSTAT CONTROL SUPPLIES heated or cooled water as required stainless steel Freon Gas Refrigerant. Complete with pre-heating and pre-refrigerant cooling system. Heating capacity maximum 120 gal. per hour at 68° F. Overall dimensions width 14 in. length 29 in. height 21¼ in. 110V AC 60 cycle single phase ¼ hp. motor. In accord with Mil Spec MIL-H-17673 (AER) dtd 18 Aug. 53, 50 ea.—SINK PHOTOGRAPHIC processing running water temp. controlled stainless steel size 11. In accord with MIL-S-17438 (AER) dtd 28 March 55, 42 ea.—SINK PHOTOGRAPHIC PROCESSING running water temp. controlled stainless steel size I. In accord with MIL-S-17438A (AER) dtd 28 March 55, 7 ea.

Commanding Officer, Chicago QM Purchasing Center, 1819 West Pershing Rd., Chicago 9, Ill.

Advance Notice

Following Item is under IFB QM 11-009-56-195—Invitation for bid will be issued on or about 19 Dec. 55—Military Specification MIL-R-3860, dated 16 Jan. 53 will be issued upon request only at the time invitation for bid is requested.

REFRIGERATOR, MECHANICAL, BACTERIOLOGICAL, 12 cu. ft. capacity, CRES, 110/120 volt, 60 cycles, AC, 1 phase—5 ea.

Following item is under IFB QM 11-009-56-196—Invitation for bid will be issued on or about 19 Dec. 55—Federal Specification AA-R-211C, dated 20 Aug. 52, and Amendment 1, dated 20 Oct. 54 will be issued upon request only at the time Invitation for Bid is requested.

REFRIGERATOR, MECHANICAL, HOUSEHOLD, Type I, Size 12 (12 cu. ft. capacity), one door, hinged right side, 115 volts, 60 cycles, single phase, A.C., with Hermetic Refrigeration Unit, and a 45 pound minimum capacity full width frozen food compartment—52 ea.

Omaha District Corps of Engineers, 1709 Jackson St., Omaha 2, Nebr., Attn.: Const. Div.

CENTRAL HEATING PLANT AND HIGH TEMPERATURE HOT WATER DISTRIBUTION including central heating plant, approx. 52x102 ft., Masonry Construction with Ash Silo, Coal Silo, Truck Hopper and all equipment, Piping, Wiring, Oil unloading station and storage facilities including 2 2500 bbl. tanks, dikes, fencing, transfer lines, wiring, piping and equipment; underground conduits, supply and return main and services to include 6530 l.f. or two 1½" to 8" line with 33 expansion loops; aboveground supply and return distribution main and services to include approx. 11000 l.f. of two 1½" to 6" lines and 27 expansion loops; seven overhead road crossings; Utility Room Equipment and control system for 3 dormitories, 2 mess halls, readiness crew bldg., operations bldg., 3 hangars and a fire station, Grand Forks Air Force Base—Job—IFB ENG-25-066-56-49—Bid Opening 25 Jan. 56—Drawings Specs and Bid Forms will be furnished by above office; No deposit required.

Little Rock District Center, Corps of Engineers, Little Rock, Ark.

COLD STORAGE MASONRY WAREHOUSE, approx. 2500 sq. ft.—Job—IFB (56-41)B—Bid Opening 10 Jan. 56.

Commanding Officer, Chicago QM Purchasing Center, 1819 West Pershing Rd., Chicago 9, Ill.

Advance Notice

Following items are under IFB QM 11-009-56-200—Invitation for bid will be issued on or about 22 Dec. 55—Federal Specification AA-R-211C, dated 20 Aug. 52, and Amendment-1, dated 20 Oct. 54 will be issued upon request only at the time Invitation for Bid is requested.

REFRIGERATOR, Mechanical, Household, Type I, Size 12 (12 cu. ft. capacity), one door, hinged right side, ½ to ⅓ HP, 115V, 60 cy., 1 phase, AC with Hermetic Refrigeration Unit, and a 45 pound minimum capacity full width frozen food compartment, 514 ea.—REFRIGERATOR, mechanical, household, Type I, size 12 (12 cu. ft. capacity), one door, hinged left hand side, ½ to ⅓ HP, 115V, 60 cy., 1 phase, AC, with Hermetic Refrigeration Unit, and a 45 pound minimum capacity full width frozen food compartment, 514 ea.

San Francisco District, Corps of Engineers, 180 New Montgomery St., San Francisco, Calif.

The following described items are to be procured under IFB ENG-04-203-56-372—Bid Opening 3 Jan. 56.

AIR CONDITIONING UNITS, complete, self-contained, floor type, for use with "Freon-12" or "22," 15 ton, 4 ea.—10 ton, 4 ea.—5 ton, 4 ea.—3 ton, 2 ea.

COOLING TOWERS, Mechanical Fan induced draft type, with complete structure: 50 tons, 1 ea.—40 ton, 1 ea.—30 ton, 2 ea.—25 ton, 1 ea.

NAVY

Navy Purchasing Office, 4th & Independence Ave., Washington, D. C. Attn.: SPF-1A.

The following items are under IFB600-608-56—Bid Opening 3 Jan. 56.

RANGE, ELECTRIC, with four surfaces cooking units. Thermostat for Oven, 38 ea.—REFRIGERATOR, Domestic, Size 10, 50 ea.—SAME except size 11, 24 ea.

AIR FORCE

Air Force Academy Construction Agency, P. O. Box 1670, Colorado Springs, Colo. Attn.: AFCIE-6/CC.

Following items are procured under IFB 05-613-56-7B—Bid Opening 31 Jan. 56.

CONSTRUCTION OF CENTRAL HEATING PLANT EQUIPMENT AND CONTROLS on the United States Air Force Academy Site, Colorado Springs, Colo. Work consists of providing all plant labor and materials required to furnish, erected in place on the Air Force Academy Site: Three (3) each 100,000,000 B.t.u. per hour forced circulation, drumless, high temperature hot water boilers, 500 psig with combination gas-oil burners, combustion controls, supports and stub stacks, but excluding other auxiliaries, foundations and interconnected piping. Two (2) each 30,000,000 B.t.u. per hour, forced circulation, drumless, high temperature hot water boilers, 300 psig with combination gas-oil burners, combustion controls, supports and stub stacks, but excluding other auxiliaries, foundations and interconnected piping.

TO PROSPECTIVE BIDDERS:

Orders for sets of plans and specifications will be accepted only from bona fide bidders who contemplate bidding as a prime contractor. A deposit of $15.00 will be required for each set. No more than 5 sets will be furnished to any one bidder. Deposit refundable if drawings and specifications returned in good condition transportation prepaid within 60 days after opening of bids.

TO SUPPLIERS, SUBCONTRACTORS, AND OTHERS:

Plans and specifications will be available for inspection by interested parties after 3 Jan. 56 at all Air Procurement Districts; the Small Business Administration Office, Room 229, New Customhouse Bldg., Denver, Colo.; Air Force Academy Construction Agency, 3333 N. El Paso St., Colorado Springs, Colo.; and in the offices of trade journals maintaining bid display rooms.

ORDERING DATE:

Sets of plans and specifications will be printed on the basis of orders on hand as of 19 Dec. 55. Orders received after that date will be filled on an as available basis. Address requests for order blanks to: Air Force Academy Construction Agency, ATTN.: AFCIE-6/CC, P. O. Box 1670, Colorado Springs, Colo. Bids to be issued 23 Dec. 55.

Purchasing and Contracting Office, Whiteman Air Force Base, Sedalia, Ohio.

AIR CONDITIONING BASE SUPPLY, Whiteman Air Force Base, Sedalia—Job—IFB 23-606-56-45—Bid Opening 27 Dec. 55.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

Procurement Officer, National Advisory Committee for Aeronautics, Langley Field, Va.

UNITS, AIR CONDITIONING, Window Type—22 ea.—IFB L-7811—Bid Opening 27 Dec. 55.

U. S. ATOMIC ENERGY COMMISSION

U. S. Atomic Energy Commission, Schenectady Operations Office, P.O. Box 1069, Schenectady, N. Y.

PUMP, MAIN COOLANT, to be furnished in accord. with Knolls Atomic Power Laboratory Spec. No. KPE-1000, Rev. 2, SAR Main Coolant Pump dated 11-23-55—5 ea.—IFB SCH-370—Bid Opening 1-11-56.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Business Service Center, 7th & D Sts., S.W., Washington, D. C.

Following items are procured under IFB R2-D-69951-R—Bid Opening 12-29-55.

AIR CONDITIONING UNITS, Misc. Sizes, 806 Units—COOLING TOWERS, 5 ton, 3 ea.

General Services Administration, Business Service Center, 1114 Commerce St., Dallas 2, Texas.

AIR CONDITIONING Court House and Judges Chambers, Court House and Post Office, Pecos, Texas—Job—IFB CR7561-99—Bid Opening 1-3-56.

AIR CONDITIONING Court Room, Post Office and Court House, Oklahoma City, Okla.—Job—IFB CR7561-96—Bid Opening 1-3-56.

15 NEMA Firms Sell 2,897,194 Refrigerators In First 8 Mos.

Summary for August and First Eight Months, 1955
Complete Electric Household Refrigerators—Sales by Sizes—Units

AUGUST (15 Companies)

	Size	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1.	3 cu. ft. (3.4 & under)	....	....	....	....
2.	4 cu. ft. (3.5 to 4.4)	1,169	....	49	1,218
3.	5 cu. ft. (4.5 to 5.4)	39	24	....	63
4.	6 cu. ft. (5.5 to 6.4)	2,329	....	1,042	3,371
5.	7 cu. ft. (6.5 to 7.4)	6,021	729	885	7,635
6.	8 cu. ft. (7.5 to 8.4)	57,821	1,065	6,922	65,808
7.	9 cu. ft. (8.5 to 9.4)	45,807	227	1,859	47,893
8.	10 cu. ft. (9.5 to 10.4)	41,649	2,232	553	44,434
9.	11 cu. ft. (10.5 to 11.4)	50,883	195	1,552	52,630
10.	12 cu. ft. (11.5 to 12.4)	56,195	132	970	57,297
11.	13, 14 cu. ft. & over (12.5 & over)	*29,463	*329	*648	*30,440
12.	**Total**	**291,376**	**4,933**	**14,480**	**310,789**
	Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**51,357**	**406**	**434**	**52,197**

First Eight Months (15 Companies)

	Size	Domestic	Canadian	Foreign	Total
1.	3 cu. ft. (3.4 & under)	....	....	....	....
2.	4 Cu. ft. (3.5 to 4.4)	12,768	....	515	13,283
3.	5 cu. ft. (4.5 to 5.4)	325	109	73	507
4.	6 cu. ft. (5.5 to 6.4)	15,871	1	4,319	20,191
5.	7 cu. ft. (6.5 to 7.4)	81,560	5,212	12,733	99,505
6.	8 cu. ft. (7.5 to 8.4)	549,241	5,297	72,032	626,570
7.	9 cu. ft. (8.5 to 9.4)	320,687	8,837	22,775	352,299
8.	10 cu. ft. (9.5 to 10.4)	451,492	15,870	15,069	482,431
9.	11 cu. ft. (10.5 to 11.4)	516,695	6,700	28,116	551,511
10.	12 cu. ft. (11.5 to 12.4)	517,071	5,967	10,368	533,406
11.	13, 14 cu. ft. & over (12.5 & over)	*209,006	*1,962	*6,523	*217,491
12.	**Total**	**2,674,716**	**49,955**	**172,523**	**2,897,194**
	Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**465,259**	**5,442**	**11,134**	**481,835**

*Combined to prevent possible disclosure.

Participating companies: Admiral Corp.; Crosley & Bendix Home Appliances Div., Avco Mfg. Corp.; Deepfree Appliance Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; International Harvester Co.; Kelvinator Div., American Motors Corp.; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Quicfrez, Inc.; Seeger Refrigerator Co.; Servel, Inc.; Westinghouse Electric Corp.

22 NEMA Firms Sell 506,072 Freezers In First 8 Mos.

Summary for August and First Eight Months, 1955
Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet where 50% or more of the net cabinet capacity is designed for freezing and/or storage of frozen foods.

AUGUST

	Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1.	6 cu. ft. (6.4 & under)				
	Chest Models	*	*	*	*
	Upright Models	†	†	†	†
2.	7 & 8 cu. ft. (6.5 to 8.4)				
	Chest Models	*2,934	*168	*279	*3,381
	Upright Models	†1,049	†24	†50	†1,123
3.	9 & 10 cu. ft. (8.5 to 10.4)				
	Chest Models	1,593	35	31	1,659
	Upright Models	‡	‡	‡	‡
4.	11 & 12 cu. ft. (10.5 to 12.4)				
	Chest Models	2,603	....	24	2,627
	Upright Models	‡8,223	‡101	‡139	‡8,463
5.	13 & 14 cu. ft. (12.5 to 14.4)				
	Chest Models	6,250	573	87	6,910
	Upright Models	5,690	105	60	5,855
6.	15 cu. ft. (14.5 to 15.4)				
	Chest Models	1,743	39	11	1,793
	Upright Models	§	§	§	§
7.	16 & 17 cu. ft. (15.5 to 17.4)				
	Chest Models	1,979	40	3	2,022
	Upright Models	§6,849	§160	§32	§7,041
8.	18 & 19 cu. ft. (17.5 to 19.4)				
	Chest Models	5,987	87	8	6,082
	Upright Models	2,883	30	122	3,035
9.	20 & 21 cu. ft. (19.5 to 21.4)				
	Chest Models	1,825	84	3	1,912
	Upright Models	¶	¶	¶	¶
10.	22 cu. ft. (21.5 & over)				
	Chest Models	356	6	6	368
	Upright Models	¶6,087	¶....	¶87	¶6,174
	Total Chest Models	**25,270**	**1,032**	**452**	**26,754**
	Total Upright Models	**30,781**	**420**	**490**	**31,691**
	Total All Models	**56,051**	**1,452**	**942**	**58,445**

First Eight Months, 1955

	Size	Domestic	Canadian	Foreign	Total
1.	6 cu. ft. (6.4 & under)				
	Chest Models	*	*	*	*
	Upright Models	†	†	†	†
2.	7 & 8 cu. ft. (6.5 to 8.4)				
	Chest Models	*24,589	*1,186	*1,824	*27,599
	Upright Models	†3,069	†63	†106	†3,238
3.	9 & 10 cu. ft. (8.5 to 10.4)				
	Chest Models	14,233	509	715	15,457
	Upright Models	‡	‡	‡	‡
4.	11 & 12 cu. ft. (10.5 to 12.4)				
	Chest Models	36,113	998	1,026	38,137
	Upright Models	‡62,005	‡1,358	‡1,347	‡64,710
5.	13 & 14 cu. ft. (12.5 to 14.4)				
	Chest Models	45,537	2,459	1,048	49,044
	Upright Models	43,070	719	1,674	45,463
6.	15 cu. ft. (14.5 to 15.4)				
	Chest Models	40,459	1,001	365	41,825
	Upright Models	§	§	§	§
7.	16 & 17 cu. ft. (15.5 to 17.4)				
	Chest Models	37,564	882	106	38,552
	Upright Models	§58,464	§1,034	§394	§59,892
8.	18 & 19 cu. ft. (17.5 to 19.4)				
	Chest Models	31,077	979	553	32,609
	Upright Models	33,780	282	391	34,453
9.	20 & 21 cu. ft. (19.5 to 21.4)				
	Chest Models	31,194	1,304	85	32,583
	Upright Models	¶	¶	¶	¶
10.	22 cu. ft. (21.5 & over)				
	Chest Models	4,221	49	33	4,303
	Upright Models	¶18,032	¶16	¶159	¶18,207
	Total Chest Models	**264,987**	**9,367**	**5,755**	**280,109**
	Total Upright Models	**218,420**	**3,472**	**4,071**	**225,963**
	Total All Models	**483,407**	**12,839**	**9,826**	**506,072**

Participating companies: Admiral Corp.; Ben-Hur Mfg. Co.; Carrier Corp.; Crosley & Bendix Home Appliances Div., Avco Mfg. Corp.; Deepfreeze Appliance Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; International Harvester Co.; Kelvinator Div., American Motor Corp.; Maytag Co., The; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Quicfrez, Inc.; Revco, Inc.; Seeger Refrigerator Co.; Servel, Inc.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Westinghouse Electric Corp.; Wilson Refrigeration, Inc.

For more information about products advertised on this page use Information Center, page 16.

Dairy Givaways--

(Concluded from Page 1, Col. 5)

business away from me. The small man hasn't any chance to get ahead."

All of the first four witnesses testified they were forced to provide extra services, such as better cabinets in which to display ice cream, in order to meet competition.

Lewis Feldman, general manager of the Danville Dairy Products Co., declared that his competitors offer free repair service on refrigeration equipment to obtain business.

He said his company offers ice cream cabinets and has been forced to offer to service refrigeration equipment in order to keep dealer accounts.

Decline of sales from 330,000 gals. in 1948 to about 250,000 gals. last year was sited by Claude T. Parcell, Jr., president of the Farmers Creamery, Inc., of Fredericksburg, Va., although he accounted for some of the loss as the result of competition from other local producers.

Parcell questioned the wisdom of furnishing cabinets to dealers.

"I don't know of a meat dealer furnishing refrigerated cabinets to his customers," he said.

If he stopped furnishing cabinets, however, "I would be out of business the next day," Parcell testified.

Edgar L. Awalt of Richmond's Awalt Ice Cream Co. said he had to meet some competition by offering discounts.

Asked if he though it "essential that the ice cream manufacturers own all of the cabinets," Awalt replied, "I don't think it is essential."

If the retail dealers owned their ice cream cabinets, they would take better care of them, Awalt declared.

Some of those who testified said that in addition to following the industry practice of servicing their ice cream cabinets said they were also forced to service other equipment such as beer coolers in order to keep their ice cream accounts.

Unions Settle--

(Concluded from Page 1, Col. 5)

poultry, and fish products. The Clerks will represent all other clerks in food stores, apparently including those in the frozen food department.

The agreement is subject to automatic renewal each year provided neither union notifies the other the pact is rescinded.

Regarding the west coast dispute, it was said that the status quo established last August will be maintained for the present. However, a joint committee reportedly will meet early next year in an effort to settle the matter.

It is expected that lawsuits filed in California courts as a result of the dispute will be settled.

R. E. Pierce Dies Following Short Illness

DALLAS — Ralph Edwin Pierce, owner of Ralph Pierce Air Conditioning Co., died in a hospital here on Dec. 3 after a short illness. He was 56.

Survivors are his wife, Mildred Pierce, and sister, Mrs. Helen Crawford.

General Air Opens 2 New Offices

LOS ANGELES—General Air Conditioning Corp. here announces the opening of new offices in St. Louis and Kansas City, Mo.

Located at 6215 Delmar Blvd., the St. Louis office will service eastern Missouri, southern Illinois, and western Kentucky. It will be managed by Carlos J. Stolbrand, a graduate of the University of Rochester who has had many years' experience as a sales director.

The Kansas City office is located at 3421 Main St. and will service Kansas and western Missouri. John J. Hayde has been named manager.

W. H. Laband, president of General Air Conditioning, said that by the beginning of 1956 additional factory sales offices will be opened.

McCoy Opens Office As Consulting Engineer

DAYTON,—Daniel C. McCoy, who recently retired after 30 years with Frigidaire Div., General Motors Corp., has established a consulting engineering office here.

He expects to be active in the fields of commercial and industrial refrigeration applications, air conditioning, food technology, electronic heating and communications, as well as sales technique and management.

McCoy's activities with Frigidaire covered various fields, and in recent years he served as technical consultant to the company's General Sales Dept.

He has long been active in the American Society of Refrigerating Engineers, of which he is a fellow, having been editor of the ASRE Data Book as well as a contributor.

Craig Named by Westinghouse--

(Concluded from Page 1, Col. 2)

appliances, and refrigeration specialties.

Prior to joining Westinghouse, Craig was vice president of Whirlpool-Seeger Corp.

Craig was elected vice president and general manager, RCA Victor home appliance division, Radio Corp. of America, in November, 1954. Before joining RCA, he had served as president and chief executive officer of Aluminum Industries, Inc., from April, 1953, and as vice president and general manager, Crosley Div., Avco Mfg. Corp., from 1948 to 1953.

Craig has a number of patents on refrigerating apparatus and ordnance fire control equipment. He was awarded the Navy Bureau of Ordnance Development Award for outstanding services.

He was graduated from the University of Dayton with a B.S. degree in 1929. His first job was with the Frigidaire Div. of General Motors in Dayton as a refrigerating engineer.

In 1937, he was named assistant chief refrigerating engineer of Crosley Corp. and advanced to chief refrigerating engineer in 1940. He was appointed works manager of the Crosley Div. of Avco Mfg. Corp. in 1945, and three years later became vice president and general manager of the division.

Chapel Cooling Contract

DES MOINES, Iowa—Clark-Peterson Co. here was recently awarded a contract to air condition the chapel, pine-paneled meeting room, and offices of the First Methodist church here on a low bid of $4,327.

BUSH
AIR
CONDITIONING...

Handling FOUR-FOLD Job at Ultra-Modern GALLO Winery

A BUSH Vertical Air Handling Unit provides both product temperature control and comfort conditioning . . . handles both cooling and heating requirements in the ultra-modern bottling room at E. & J. Gallo Winery, Modesto, Calif. Face and by-pass damper sections, mixing box assembly and filter section permit flexibility and close control of the conditioned area.

Whatever *your* air handling requirements, there's a BUSH unit to meet them. Available in vertical floor-mounted or horizontal ceiling-hung models in capacities from 2.5 to 90 Tons . . . with a wide selection of accessory equipment to exactly meet any special needs. Models from AH10 to AH32 incorporate famed Inner-Fin extra-efficiency coil construction — patented BUSH exclusive.

Request catalog #710 containing complete specifications on Bush Air Handling Units.

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